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ABSTRACT

By 1975 there will be an estimated 10 million students enrolled in colleges and universities in the U.S. alone. This increase in student enrollment calls for careful planning by the higher education institutions in their expansion programs. This document is the result of a study of the colleges and universities in the state of Delaware. It is felt that the most efficient and equitable application of resources to the higher education needs of Delaware requires a statewide consideration of all aspects of higher education. The report considers in the broad sense program offerings, enrollment projections, the need for changes in organization and structure, future financing, and the extent, condition, and utilization of higher education facilities. (HS)

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ALLIANCE FOR GREATNESS

A Comprehensive Study of Higher Education in the State of Delaware

A report prepared for the Higher Educational Aid Advisory Commission, State of Delaware, by a Consultant Panel appointed by the Academy for Educational Development, Inc.

February, 1969

HE 003 195

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CONTENTS

Page

Letter of Transmittal

List of Recommendations 1

Report of the Consultant Panel

Introduction 18
Alliance for Greatness 20
Updating Curriculum Programs 41
The Need for Interinstitutional Cooperation 55
Toward an Urban University 62
Technical Education 68
The Growing Demand for Continuing Education 73
Meeting the Shortage in Teacher Education 80
Research and Development in Higher Education 87
Future Higher-Education Enrollment 92
Facilities for Higher Education 100
Financing Higher Education 115
Conclusion 123

Tables and Charts

Table 1 The Twenty Metropolitan Areas Richest in Scientific Personnel 88

Table 2 Increases in College-Age Population (Eighteen to Twenty-Four) Compared to Increases in Total Population for Delaware, 1965 to 1980 95

Table 3 Total Enrollment in Delaware Institutions of Higher Education by Program, 1967-68 98

Table 4 Enrollment in Delaware Institutions of Higher Education, Full and Part Time, 1968 to 1977 98

Table 5 Condition of Academic Facilities of Institutions of Higher Education in Delaware 103

Page

Table 6 The Condition of Dormitory and Dining Facilities of Institutions of Higher Education in Delaware 103

Table 7 The Condition of Auxiliary Facilities of Institutions of Higher Education in Delaware 104

Table 8 Classroom and Laboratory Utilization in Institutions of Higher Education in Delaware 106

Table 9 Percentage of the Total Net Assignable Space Allocated to Major Organizational Units in Institutions of Higher Education in Delaware 108

Table 10 The Net Assignable Square Feet per Full-Time-Equivalent Student by Major Organizational Units in Institutions of Higher Education in Delaware .. 108

Table 11 The Net Assignable Square Feet per Student (Head-Count) by Major Organizational Unit in Institutions of Higher Education in Delaware 109

Table 12 The Net Assignable Square Feet per Student (Head-Count) by Major Type of Room-Space Category in Institutions of Higher Education in Delaware 109

Table 13 The Net Assignable Square Feet per Full-Time-Equivalent Student by Major Type of Room-Space Category in Institutions of Higher Education in Delaware 110

Table 14 Comparisons of the Research Space Inventoried at the University of Delaware 110

Table 15 1968-69 State Appropriation per Full-Time Undergraduate Student for Selected Universities .. 118

Chart 1 Population Projections for Delaware, 1965-80 92

Chart 2 Selected States Ranked by Net Migration, 1965-85 93

Chart 3 Estimated Population of Delaware, Eighteen- to Twenty-Four-Year-Olds, 1965-77 94

Chart 4 Percentage of Increase for Delaware of the Eighteen- to Twenty-Four-Year-Old Group Compared with Total Population Growth, 1965-80 95

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Mrs. Kendall M. Wilson, Chairman
Higher Educational Aid
Advisory Commission
200 West Ninth Street
Wilmington, Delaware 19801

Dear Mrs. Wilson:

In the spring of 1967 the Higher Educational Aid Advisory Commission asked the Academy for Educational Development to conduct a study of all higher education in Delaware. The commission sought to develop, for the first time in the history of Delaware, a comprehensive picture of the total higher-education situation in the state. As the panel appointed by the Academy for this purpose, we are pleased to submit our findings and recommendations for the improvement of higher education in Delaware. Supplementing this report is a number of volumes of confidential memoranda and exhibits that provided background information for our work.

We were guided throughout the study by our belief that the most efficient and equitable application of resources to the higher-education needs of Delaware requires a state-wide consideration of all aspects of higher education. The report considers in the broad sense program offerings, enrollment projections, the need for changes in organization and structure, future financing—as well as the extent, condition, and utilization of higher-education facilities. The study was supported by funds under the Comprehensive Planning Program of the Higher Education Facilities Act of 1963.

In 1965 the Academy conducted a study for the University of Delaware entitled *Reaching for Greatness*. In some ways the report we are submitting is an appropriate sequel to the earlier study, for greatness in Delaware's higher education is yet to be achieved on the scale that we feel is possible and that the people of Delaware have a right to expect. As a panel we can only point the way. Whether that greatness is reached remains a challenge that has yet to be fully accepted by the people of Delaware.

We believe this report will be of assistance to those in Delaware who seek to further their state's system of higher education and who accept the challenge of the future. We have acknowledged the legitimate concern of each institution for its own well-being, but have attempted to suggest that in the public sector the long-run success of each institution of higher education will depend on its relationship to a new community of public institutions.

Cordially,

Alvin C. Eurich (Chairman)
Chester M. Alter
Harvie C. Branscomb
Harold B. Gores
Henry M. Wriston

List of Recommendations

The following list of recommendations was drawn from the chapters of the body of the report; these chapters should be referred to for the detailed observations and analyses upon which the recommendations were made.

Alliance for Greatness

Delaware's size and the number of its institutions argue against the formation of an agency or superboard to coordinate higher education, but informal coordination in the panel's judgment will fail in the future to produce the best possible higher education for the state. The University holds the position of power and prestige in higher education in the state. Therefore it should use its authority and prestige to give leadership to all public higher-education institutions within the state. The superior advantages of the University should benefit all public higher education in Delaware, so that critical issues can be met by the most able minds with all available public and private resources. The University should resolve to meet all the needs of people in Delaware who seek public post-secondary education, and establish methods and procedures through which it is accountable to the people and the state for its actions while maintaining its autonomy.

1. *It is the panel's recommendation, therefore, that the University of Delaware be made responsible for all public post-secondary education in Delaware.*

2. Each institution of public post-secondary education (and any future institutions) should be made a campus of the University of Delaware, to be headed by an officer appropriate to the level of education offered.

3. The panel does not recommend a numerical expansion of the present board of trustees of the University, which may already be too large, but suggests the board be reconstituted to include representatives of all the diverse educational interests within the state. The panel be-

lieves that, given a wider set of responsibilities, such a board would discharge them with the same judgment and skill that it has shown in the past.

4. As immediate steps to ensure state-wide representation in all decisions made by the University, the panel recommends the permanent establishment of:

   a. A state-wide faculty senate representative of all public post-secondary institutions.

   b. A committee of the heads of all University campuses to act as advisers to the president of the University.

   c. A local advisory committee for each campus to facilitate communication between the community and the campus.

5. The panel recommends that all necessary administrative steps be taken to provide maximum cooperative use of libraries, special resources, and expensive equipment; and to facilitate, on an increasing basis, the interchange of faculty from one campus to another.

6. The expanded University should take all steps necessary to ensure that the administration of its private support continues to be in accordance with the donors' wishes. It should also seek increased private support of its new responsibilities.

7. State-wide officials of the enlarged University will especially want to assure that the areas of strength in programs, faculty, and administration already present at the Dover campus are supported and reinforced. There are certain problems at this campus to which priority must be given once the enlarged University is created. These include:

   a. The development of a master site plan for the Dover campus as a part of the University.

   b. Special efforts to assure the early interchange and participation of the Dover faculty and administration in the affairs of the whole University, especially on the Newark campus.

   c. Improved instructional support.

   d. Improved maintenance arrangements for buildings and grounds.

The panel recommends that neither Dover nor any other campus of the expanded University become or remain predominantly a Negro institution for any extended period of time. The panel believes that some time

— two to four years — may be required to coordinate completely the campus activities at Dover with those of Newark and elsewhere. Delaware should have fully integrated campuses throughout the state just as soon as possible. The panel also recommends that in developing the plans and the future administration for higher education Negro leaders should be included at the highest levels.

8. The panel recommends that the Higher Educational Aid Advisory Commission continue in its present role, and that in the future it:

   a. Seek *ad hoc* advice on educational problems that are submitted to it by the University and others through the use of committees and consultants.

   b. Involve people in an advisory and membership capacity who have breadth of interest and expertise in a variety of appropriate backgrounds, from business and industry as well as the fields of public service.

   c. Administer the federal programs in its jurisdiction. The panel believes that it would be appropriate for the commission to coordinate all federal programs to aid higher education that require the participation of public and private institutions.

   d. Represent the needs of both public and private institutions to appropriate public officials, both state and federal.

   e. Serve public and private institutions in an advisory capacity.

9. Charters of incorporation for new private higher-education institutions should not be issued by the state without prior approval of the State Board of Education.

Updating Curriculum Programs

1. All programs offered in public higher-education institutions should be coordinated under the expanded University of Delaware. The University's responsibility then will be to:

   a. Carry out assessment of state-wide curricular needs and the development of programs to meet them.

   b. Keep well informed about current and future national trends in higher-education curriculums.

   c. Increase curricular programs to train students in sufficient numbers to meet the state's responsibilities locally and nationally.

d. Encourage cooperative efforts in curriculum planning and development within and across state borders between public and private institutions.

2. The University should form a joint committee that includes representatives from all levels of higher education in Delaware to establish a clear set of objectives for each campus of the expanded University. At the Newark campus the University should concentrate on upper-level and graduate programs, with the emphasis in the freshman and sophomore years on excellence in general education.

3. One of the first curricular concerns of the expanded University should be a comparative study of the quality and number of courses offered at the Newark and Dover campuses. Every effort should be made — including re-allocation of state funds, equalization of faculty salary scales, flexible scheduling of students and faculty, administrative reorganization, and implementation of state and university television and library resources—to prevent the needless and expensive duplications that exist (such as in the present agricultural and home-economics programs) and assure that the quality of instruction and availability of facilities are of the highest level appropriate to the program offered.

4. Technical education in Delaware should be clearly established as a part of higher education. An assessment of manpower needs, analysis of the programs offered, and plans for proposed future developments should all be carried out within the expanded community of the University. Thus technical education will benefit from the variety of experiences and resources of higher education in the state, and students will be able to move freely as they develop their career plans.

5. The general studies program currently offered only at Georgetown should be extended through existing channels to all who desire it through University extension programs, educational television, and on-campus day and evening classes. Higher-education resources should be employed in cooperation with the State Department of Public Instruction to make this program as effective as possible in reaching and preparing those who wish to pursue higher education but lack the necessary qualifications. During the next five years a re-evaluation should be made to determine whether the responsibility for this program can be transferred from the University to local school agencies.

6. Teacher education at the University should be planned and carried out within the context of national trends and developments in

this field (see the chapter, "Meeting the Shortage in Teacher Education," for specific recommendations).

7. The University should establish through programs at all levels its commitment to work with the urban problems of Delaware and the nation (for specific recommendations see the chapter, "Toward an Urban University").

8. The expanded University should investigate the feasibility of offering interdepartmental programs in area studies, building upon existing University strengths, developing those areas (such as modern languages) that are appropriate; and it should establish strong cooperative arrangements with regional universities and colleges, existing centers for international studies, and other appropriate public and private agencies.

9. The University should continue to use private as well as public resources to develop and expand its doctoral programs in chemistry and biology. Efforts should be made to increase advanced research in these areas at the Newark campus.

10. The University should encourage superior work leading to doctoral degrees in the social sciences. This development should take place under the direction of a Social Science Research Council, which should include representatives from the colleges of economics, education, psychology, sociology, and the Division of Urban Affairs, with leadership coming from the interdisciplinary Division of Urban Affairs.

11. The Division of Urban Affairs should be upgraded academically with specific appointments and curriculum expansion made in consultation with the Social Science Research Council. The University should consider establishing this department at its Wilmington campus.

12. The University should strengthen the School of Business and Economics by postponing entrance until the junior year, and requiring that the first two years be spent in the College of Arts and Sciences. A department of economics in the College of Arts and Sciences should be established for broad theoretical courses, leaving applied economics to the School of Business and Economics.

13. Through close cooperation with the Wilmington Medical Center and other appropriate public and private agencies, the expanded University should move to establish a center for training in the health services, including two-year, four-year, and graduate programs in sub-

professional and professional areas of auxiliary training. The emphasis should be on public health training, assessing public health problems, and bringing needed medical services to the community. Work of this kind would be preparatory to the development of a complete medical facility in Delaware for the future, and meanwhile it would contribute to providing technicians for health services and the medical field. While these programs develop, there should be a continuing effort to establish cooperative arrangements with appropriate agencies and institutions.

The panel believes that the proposed University system can offer education programs of the highest quality throughout Delaware at the most reasonable cost to the taxpayers. When state-wide facilities are established, outstanding opportunities will occur to develop programs as needed, with transfer opportunities made available for those who wish to start their education near home and continue it later at a campus elsewhere in Delaware or in another state. Flexibility and adaptability of the programs are the most important features of the suggested arrangement.

The Need for Interinstitutional Cooperation

1. The biggest step toward cooperation between public higher-education institutions in Delaware would be the establishment of the recommended state-wide University. The proposed state-wide University should designate an official or officials to work with both the private Delaware institutions and out-of-state institutions to develop cooperative arrangements wherever possible and desirable.

2. Cooperative arrangements to be considered should include:
    a. Programs in art history and horticulture, for which the University could make available the resources of Winterthur Museum to students from other institutions. Those institutions would, in turn, have facilities of benefit to the University.
    b. Arrangements with the Drexel Institute of Technology to use the resources of its excellent library school instead of establishing one at the University.
    c. Strengthening the University's research and development programs through cooperation with industry, other higher-education institutions, and research centers such as the University City Science Center in Philadelphia.
    d. Entering into cooperative arrangements with regional consortiums such as the University Consortium in Washington, D.C.

e. Cooperative efforts involving the major regional agricultural programs, with each institution contributing from its areas of strength.

3. Of special interest to the University would be the development of its facilities for television, computer services, and other educational technologies through greater cooperation with the Delaware Educational Television Network and regional educational television stations. A first step should be the establishment of a direct link between the TV facilities at the University and those at the state television station in Dover. Programming for all levels of education would be improved by a greater integration of the outstanding state production facilities with the University's strengths and interest in the educational process: learning psychology, teaching techniques, and sophisticated program evaluation.

4. Proposed cooperative efforts should be further encouraged between the expanded University and private higher-education institutions in such areas as educational television, computer services (educational and administrative), and library cataloguing facilities.

5. The University should continue its outstanding program of training doctors in cooperation with Jefferson Medical College and the Wilmington Medical Center, and should proceed with plans for other kinds of health training in cooperation with appropriate agencies, as outlined in the chapter, "Updating Curriculum Programs."

These recommendations suggest the many possibilities for cooperation that now exist and that can be actively explored and implemented by officials of the University. Were the possibility of cooperation to be actively entertained by the expanded University, many more projects and proposals would soon present themselves. Such arrangements are of paramount importance to the development of high-quality programs that the community has a right to expect from its publicly supported higher-education institutions.

Toward an Urban University

1. The New Castle campus now being developed in the Wilmington area for technical and community college programs might provide part of the basis for the University's expansion into the urban area of Wilmington. Quite possibly at least one other campus will be needed in the Wilmington area. The expanded University should explore all appropriate methods by which residents of the Greater Wilmington

Metropolitan Area may be provided with a variety of educational experiences, including full-time baccalaureate, and selected post-baccalaureate programs.

2. The University should establish at its Wilmington campus an office responsible for encouraging cooperation between the University and all appropriate civic agencies and organizations that could contribute to the University's programs in higher education.

3. As the Wilmington campus of the University expands, officials should give consideration to transferring certain of their departments and divisions to this campus, making it the headquarters of those activities that are appropriately conducted in an urban setting.

4. A cohesive and comprehensive program in urban studies through the doctoral level should be established at the University, leading eventually to a major division of the expanded University, possibly a college to include studies in public health (see "Updating Curriculum Programs").

5. The College of Education should make a special effort to work more closely with Wilmington city schools than it has in the past, including student-teacher placement, courses for teacher aides, in-service training for experienced teachers, special programs for teaching the urban child, studies in the use and preparation of materials presented through the new educational technologies, and other programs especially related to the problems of education in an urban setting.

6. The University should conduct research in the problems of the poor in the overrun cities of the East Coast. This is an area that needs intensive examination and study.

7. Of mutual benefit to the state and the expanded University would be the establishment of a formal program of University assistance to state agencies responsible for alleviating urban problems. Such a program would encourage contractual relationships for graduate students in appropriate state agencies, *ad hoc* consulting by members of the University faculty, and state-sponsored and supported research at the University in problems of special concern to Delaware. Among the agencies that could benefit from University assistance are the Department of Housing, the Department of Transportation, the State Highway Department, the Development Department, and the Water and Air Resources Commission.

Technical Education

1. Public post-secondary technical education should be made a responsibility of the expanded University of Delaware. The decisions for present and future course offerings, expansion, or other developments should be made within the context of all of higher education in Delaware (see the recommendations in the chapter. "Updating Curriculum Programs").

2. Every effort should be made to provide for the development of technical education as a part of higher education and as its own special requirements dictate; but it should not be burdened with academic requirements and procedures inappropriate and unnecessary to its function.

3. In the expanded University system a program for training technical educators, counselors, and administrators should be begun, to consist of the following:

Education of teachers, administrators, counselors for vocational high schools and post-secondary programs.

Curriculum development for vocational high schools and post-secondary technical programs.

4. In the comprehensive high-school curriculum, every effort should be made to provide a vocational program. At the post-secondary level, technical programs should be clearly related to the more specialized needs of students and society.

The Growing Demand for Continuing Education

1. All publicly supported adult and continuing education in Delaware should be made a responsibility of the expanded University, which should form for this purpose a College of Continuing Education with full university status, administered by an official with a rank appropriate to this position.

2. Programs in the College of Continuing Education should be planned and carried out in line with the University's tradition of community service. They should be based on a continuing study of the needs of government, business, industry, education, and other groups in society — for example, the training of women who wish to re-enter the job market, and of minority or disadvantaged groups who need special courses. Programs that help citizens to acquire knowledge, programs that help overcome years of discrimination or inferior education are as

much a responsibility of a college of continuing education as are job training and avocational courses.

3. For the financing of the College of Continuing Education, the University should look to public and private sources for support of programs and activities. If programs are justified on the basis of the need for them in the best interests of the people and of the state of Delaware, funds should be made available even if tuition or other charges will not pay the total cost.

4. The state's needs for continuing education in the future can be met through many means. The University should seek beyond its own personnel and facilities to develop the programs required. Contracts should be arranged with private institutions in the appropriate areas, and civic, industrial, and business groups should be approached as sponsors for the programs.

Meeting the Shortage in Teacher Education

1. The Department of Public Instruction and the University should jointly develop the criteria for the over-all character and quality of teacher-education programs in Delaware, and determine the numbers of teachers needed.

2. Although the development of criteria for teacher education is the responsibility of the Department and the University, the University should have the maximum responsibility for the implementation of the various education programs.

3. It is the responsibility of the state, by providing adequate facilities and financial resources, to staff the public schools with teachers of the kinds and number that they need. This implies funds for assessment of program needs, evaluation and implementation of programs, and research into innovations in education, especially new ways of using educational personnel.

4. While Delaware should not seek to employ only state-trained teachers, it should begin to produce a much higher percentage of the new teachers required annually to staff the public schools.

5. The education of teachers should be conducted within a framework of general education.

6. The need for clinical experience as well as theoretical knowledge may require a five-year program which integrates more supervised but responsible teaching with theoretical study.

7. The greater participation of student teachers in the real problems of education will improve the quality of undergraduate and graduate instruction, and at the same time may help to motivate would-be teachers to enter the field.

8. Greater flexibility is needed in appraising a person's qualifications for teaching so that those with valuable experience can be assured entry into the profession at a level commensurate with their abilities. This is especially true of mature women who wish to re-enter the job market, and for people with skills needed for new programs.

9. The establishment of a doctoral program in education is of the first priority, both in the training of Delaware school administrators and in the strengthening of the College of Education that will be part of the expanded University.

10. At the undergraduate and master's levels, the most urgent needs are quality programs to train sufficient numbers of teachers and the coordinated participation of local schools throughout the state in this training process. The panel believes that recommendations to Delaware made by the Academy in 1965 to make teacher education more flexible continue to be relevant for the expanded University. These include:

a. "Recruiting liberal arts graduates into a fifth-year program of professional preparation, accompanied by the opportunity to continue academic studies in their fields of specialization.

b. "Developing University-school partnerships to provide paid internships, thus materially improving the clinical aspect of professional preparation and furnishing a means by which the costs of the fifth-year program may be borne in significant degree.

c. "Establishing alternative four-year and five-year teacher-education programs leading to teaching credentials and the appropriate degrees.

d. "Liberalizing the conditions under which undergraduate liberal arts candidates in two- and four-year programs may transfer to teacher education programs."

11. It should be the College of Education's responsibility to be concerned with the full range of education-training needs from preschool through adult programs. It should also be the College's responsibility to draw into its programs support from other appropriate divisions of the University.

12. The expanded University should substantially increase its involvement with the problems of urban education through greater cooperation with the Wilmington schools (see the chapter, "Toward an Urban University").

13. Of immediate concern to the expanded University should be training programs to staff secondary and post-secondary technical schools (see the chapter, "Technical Education").

Research and Development in Higher Education

1. The expanded University should establish and strengthen its relationships in all areas with nearby urban centers. The University must strengthen its ties to these centers to provide increased educational opportunities at its Newark campus — not only in the programs of study that involve research and development, but for the total enrichment of the educational and cultural climate that research and development personnel and their families desire.

2. The expanded University should establish viable relationships with industrial research centers. DuPont and its related industries, with their extensive and sophisticated research facilities, could make substantial contributions to the prestige of the University through cooperative efforts in research and development. The efforts would be mutually beneficial; by enhancing the prestige of the University, DuPont would be encouraging highly qualified faculty to work and teach there, and having a prestigious university nearby would in turn make the Greater Wilmington Area a more attractive place for potential DuPont employees.

3. The expanded University should develop training programs, especially at Wilmington, to turn out technical personnel of the types needed in research and development laboratories. To ensure that the programs are appropriate, the University should plan them in cooperation with local industries.

4. The expanded University should investigate the possibility of setting up a research park, to be established jointly by DuPont and the University.

5. The expanded University should establish relationships with an existing regional research and development center, such as the University City Science Center in Philadelphia. This would accomplish two

things: involve the University with problems common to the whole region and help to break through state-line provincialism.

6. The expanded University should strive to increase its services toward developing the technology of the whole community.

7. The expanded University will be offering new curriculums drafted with future trends in mind. These new curriculums, designed with flexibility and scope for student initiative, will call for research projects that measure innovative educational efforts. There should be a continual assessment of the effects of educational content and methods on the students.

Future Higher-Education Enrollment

1. By 1977, the panel projects at least 44,000 students in and outside the state will seek higher education in the public and private higher-education institutions in Delaware. This represents more than a two-fold increase over the enrollment of 16,186 in 1967-68.

While this estimate may seem high, it should be pointed out that estimates made by the institutions themselves and by Arthur D. Little, Inc., for this same period indicated a *tripling* of enrollment in Delaware's public and private institutions. While the panel shares the enthusiasm of the institutions and other researchers, and is aware of the impact that the establishment of more two-year terminal and transfer programs will have, it believes that its estimates are more realistic for planning purposes for the decade ahead.

2. The University's projection for graduate enrollment by 1977 is 3,300; this represents a considerable increase over the present number. The University's potential will not be fully realized until there is much more full-time graduate work in the areas where the University excels, and in those additional areas where the panel has recommended increased efforts and program development. As noted in the chapter on student aid, larger full-time graduate enrollment will require greater support for fellowships, graduate assistantships, and faculty research.

3. Many observers will feel that the enrollment projected for unclassified and special students seems high in comparison to present enrollment. The panel believes that in the light of national trends these estimates are not unreasonable. The increase will no doubt occur because of new opportunities in the urban areas of the state and because these programs will be under the auspices of the University of Delaware.

4. The state and education officials responsible for Delaware's higher education in the future should recognize the opportunities that are provided by a continuing and extension education program. Although the University's efforts have produced admirable results, the panel believes that greater state-wide coordination of this program would accommodate many more potential students.

Facilities for Higher Education

1. A state-wide campus master plan should be developed for the expanded University. Such a state-wide plan should include, in the following order:

- a. A careful definition of the level and scope of academic programs at each campus. Unnecessary duplication of programs should be avoided.
- b. Detailed enrollment projections (targets) for each campus should then be developed in light of the academic programs planned for each campus.
- c. Projections of faculty and staff needs at each campus should then be developed, based upon formulas that reflect the academic programs and enrollment projections for each.
- d. Projections of the operating expenditures at each campus should be made for each academic program to assist in determining the economic feasibility of such programs.
- e. Projections of facilities and land needs should be based upon the above projections and a detailed method of projecting such needs. In projecting facility needs, the following space factors should be used:

Classroom	
Less than 1,000 FTE students	1.00 NASF/WSH*
With 1,000 to 3,000 FTE students	.83 NASF/WSH
More than 3,000 FTE students	.67 NASF/WSH
Laboratory	
Graduate program including agriculture	4.5 NASF/WSH
Undergraduate liberal arts program	3.0 NASF/WSH
Technical programs	4.5 NASF/WSH

Office

An allowance of 140 net assignable square feet per person requiring office space (to include office-service space and conference rooms).

Library

An allowance of 1 NASF/10 volumes for stack space.
An allowance of 20 NASF/reader for 25 percent of the students.
Service space to be treated similar to office space.

All other

Special-use facilities, general-use facilities, supporting facilities, and residential facilities should depend on the needs of the individual facility.

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* *Net assignable square feet per weekly student hour.*

2. In developing the state-wide master plan for the expanded University:

   a. Each campus should establish a planning committee that would consist of the chancellor, president, dean or business officer, the registrar, representatives of the faculty, and representatives of the student body. Subcommittees could be formed to study each element of the plan.

   b. A state-wide University planning office should be adequately staffed to coordinate and direct the planning efforts of the local campuses.

   c. The preliminary plans of each campus should be collated to form a total picture of the state. The review of the expenditures indicated in such a total plan by the appropriate University officials and the board of trustees will then provide a base upon which policy may be developed and decisions made regarding the role and scope of each campus.

   d. The policy developed by the board of trustees will then be adopted by each campus and the master plan will be reshaped and developed at these campuses in light of the stated policy.

   e. The development of a master plan is a continuing process in which each campus keeps reshaping its programs, procedures, and policies.

3. When the master plan is completed, the architectural plan for the state may be developed. Architectural plans must be developed from the master plan and should include:

   a. The programming of space needs by organizational units and the types of rooms based upon appropriate space factors.

   b. Architectural and engineering studies of land use, utilities systems, and site acquisition that interpret the role and scope of each campus.

   c. Provision for new buildings and other facilities for the next ten years, including their locations and general arrangements.

4. Provision should be made by the Legislature to provide some support to the Higher Educational Aid Advisory Commission so it can hire professional staff and consultants to help with the major expansion and re-organization of the campuses that this report recommends. The institutions, public and private, contemplate a total expenditure of over $110 million for facilities in the next six years. Some of this money

must come from private sources, but most of it should come from the state and the federal government. If the state were to allocate $150,000, or $30,000 each year for five years, to the commission to aid in careful planning for the future, it would be money well spent.

5. The third year of planning grant funds available under the Facilities Act should, if the panel's recommendations for consolidation are carried out, be used totally or primarily to help the expanded University develop the state-wide master and architectural plans recommended above.

6. The commission, in establishing priorities and in evaluating future requests from the institutions for support under the Higher Education Facilities Act, should use the various space factors recommended under item 1-e above.

7. The Delaware State Planning Office should be expected in the future to work cooperatively with the commission and to seek its advice in establishing the relative priorities of requests from the expanded University in relation to the requests of other state agencies for construction funds.

Financing Higher Education

1. All budgets for higher education should be coordinated, reviewed, and submitted to the state through the state-wide University of Delaware. This should apply to both operating and capital funds and also to auxiliary enterprises and contract research.

2. With the responsibility for all of public higher-education financing resting in the expanded University treasurer's office, a new financing policy should be prepared to provide:

> Equity in faculty salaries and fringe benefits at all institutions of higher education, which should be competitive nationally.
>
> Adjustments of tuition charges to reflect both increased expenses and the savings brought about because of increased coordination.
>
> Close coordination between academic and financial departments, and between them and the University planning office.

3. The panel makes the following recommendations for state programs of student assistance:

   a. All state scholarship programs should be organized under the Right to Education Act. State funds available under this act should be substantially increased to ensure that no prospective student of higher education is denied access to public Delaware institutions because of financial need. As costs of education continue to rise, the adequacy of these funds should be continually reassessed.

b. An expanded University would be able to facilitate the Right to Education Act's dictum to include all students in public higher education in Delaware. The panel recommends that guarantees be written into the act to ensure that no discrimination is made on the basis of race or religion.

c. State funds for assistance to the University's students should be appropriated annually in a lump sum. The distribution should be administered by the expanded University of Delaware, operating in accordance with the Right to Education Act.

d. Under the state-wide University system there should be only one tuition schedule for all segments (with a continuing higher rate for out-of-state students). As this single tuition schedule may impose hardships on those students who previously paid at a lower rate, the panel recommends that the University be prepared to meet the proportionately greater financial needs of these students.

e. Because Delaware's private institutions now educate a percentage of Delaware residents who might otherwise be in public institutions, the panel recommends that state assistance be extended to private institutions for needy Delaware residents who study there. As an incentive to these institutions to enroll more Delaware residents, an annual lump sum appropriation could be arrived at by means of a formula. One such formula may be to provide the equivalent of the full cost of tuition to each private institution at the rate of 5 percent of the number of Delaware residents enrolled in the previous year. It is assumed that financial aid to students would be administered by the institution to Delaware residents on the basis of need.

f. To increase the opportunities for full-time graduate study at the expanded University there should be established greater financial assistance for full-time graduate students. As the University recognized in its *Fifteen-Year Forecast of Students, Staff, and Facilities Ending in 1982,* "The number of full-time graduate enrollments will depend directly on the extent to which the University will compete successfully for federal, industrial and foundation grants in support of research and graduate education."

Introduction

In the fall of 1968 some 6,800,000 people entered 2,400 colleges and universities in the United States, a 143 percent increase over the 1955 enrollment of 2,800,000. The outlook for the future promises an increase of the same proportion: by 1975 it is estimated that 10 million students will be enrolled in American institutions of higher education. The institutions face this avalanche with some uncertainty. Merely increasing the number of teachers and classrooms is a challenging task, but by itself that is not the answer. The whole concept of higher education must be reconsidered. Students, faculties, trustees, and the general public are questioning the traditional roles of higher education in this country, demanding that it assume new tasks and responsibilities. The question is no longer, "Who shall be educated?" As a nation, we have committed ourselves to helping to provide higher education for all who seek it. We must now ask, in the face of the tremendous expansion and the upheaval on college campuses, whether the existing programs and structures can be made appropriate for the higher education and the society of tomorrow.

John Gardner, former Secretary of the Department of Health, Education, and Welfare, wrote in his recent book, *No Easy Victories,* "All the organizational arrangements, all the methods and procedures that characterize American education today were originally devised to help us accomplish our purposes. If they no longer help us, we must revise them. The arrangements and methods must serve us and not control us." If higher education is to continue its role of preparing our citizens for participation in the world of tomorrow, all those concerned must confront directly the many conflicting pressures upon our colleges and universities, establish priorities and clearly stated goals, and create the organization and structure that can successfully channel all available human and financial resources to the identified problems. The alternative would be not just the preservation of the present system, but a chaotic future of hastily made decisions in response to strident voices demanding change.

As Delaware faces a future of new and greater demands upon its higher-education facilities and programs, those responsible for higher education should take stock of the state's many resources and advantages which will make easier the task of comprehensive planning. Even though higher education is rapidly expanding, the number of institutions in Delaware is still small, and communication between them is unhampered by great physical distances. Delaware is fortunate in its legislative commitment to extend higher educational opportunities to people of all economic levels. Most important, Delaware has always been able to count on the active participation in higher education of its most outstanding and influential citizens. The continued efforts of such men and women in the development of all higher education in the state must be encouraged if Delaware is to have a system of colleges and universities commensurate with its needs and resources.

The endeavors of Delaware educators, legislators, and interested private individuals must be coordinated in comprehensive state-wide planning so that the best of the past will not be discarded in the pressing need of providing for the future. As public education assumes a greater role in higher education, contributions of private wealth must be welcomed and encouraged. There must be assurance that both public and private institutions will maintain the necessary degree of independence vital to their operations. Moreover, in providing new services to meet the new demands and in extending educational opportunities to everyone, higher education in Delaware must continue the cultivation of excellence that has always existed in its best institutions.

Alliance for Greatness

Throughout our nation the implications of the tremendous growth in enrollment and kinds of students seeking higher education underscore the urgency for planning ahead. The panel believes that imaginative and comprehensive planning can be successfully carried out only if the public agencies and higher-education institutions in a state or region work together. Otherwise higher education, institution by institution, will drift into the future without developing any well-defined or well-organized strategy or plan, with each institution unconcerned about its role in relation to that of its neighbor. For an area of our national economy that will have spent at least $20 billion for operating and capital costs during 1968 and may be expected to spend two to three times that amount by 1975, the present lack of planning and coordination is economically wasteful and a cause for serious concern.

Greater public participation has led to a growing demand by administrators, trustees, donors, state legislators, and Congressmen for more information, more planning, more projections, and, above all, for new strategies of gaining more support for higher education. To handle these demands at the state level, specific agencies are being created to make plans and to administer them. Major and critical policy decisions in higher-education institutions are frequently being made that affect academic, financial, and administrative directions. Some of these decisions cannot be postponed and many of them will have long-term and far-reaching effects. Therefore, states are setting up machinery to direct the determination of these decisions on a sound basis and to fit them into a coordinated state-wide plan.

State constitutions have always provided more support to elementary and secondary education than to higher education, which got its support mostly from the private sector. To the extent that there is public policy governing higher education in Delaware, it pertains largely to each institution individually and inconsistently and has emerged from the particular interests of the colleges and universities, legislatures, and governors. Rarely in Delaware have provisions been made for higher education in response to other than immediate considerations and constituency pressures. Today, however, as demands and the expenditures for them accumulate, and since the financial resources are limited, it is imperative for Delaware to have extensive, well-coordinated, long-range planning by a board or agency with state-wide responsibility.

The following guidelines were developed by the panel to help evaluate various alternative arrangements for future organization and structure of higher education in Delaware:

- The term "higher education" should encompass all post-secondary study — credit and noncredit, organized programs of instruction or research primarily concerned with fields of organized knowledge, related theory, and associated practice, pursued on a full- or part-time basis by persons who have completed secondary school or who demonstrate equivalent competence through appropriate means.

- Higher-education institutions, whether public or private, should have sufficient independence to direct their own programs in an atmosphere of academic freedom.

- Any future plan for the organization and structure of higher education should be considered within a comprehensive state-wide scope. It should be able to assign priorities to state higher educational needs.

- The development of new institutions, public and private, within the state must be viewed in the total context of all existing and future higher-education needs in Delaware.

- Higher education is a right of all citizens. It should not be denied them because they do not fit into past patterns and practices of higher education. Public funds should be allocated to develop new services, new programs, and if necessary new institutions to provide opportunities for those whose backgrounds prevent them from sharing equitably in the existing higher-education system.

- Public higher education should be supported by public and private funds through appropriations, grants, and loans on the basis of comprehensive plans submitted by the institutions working cooperatively, with the understanding that the public is entitled to an accounting for this support.

- Higher education, public and private, needs private financial support; arrangements to assure that this support is encouraged and protected are highly desirable and appropriate.

- Publicly supported higher education can flourish best when adequate support is matched by the delegation of responsibility and accountability to appropriate officials of higher education.

Today the organization and structure of higher education in Delaware consists of a number of disparate institutions, whose operation is based on past educational, legislative, political, and social history. This configuration of institutions of higher learning needs critical appraisal and evaluation in relation to the needs of the present and the future.

As a state with one of the most rapidly expanding economies in the country, Delaware is experiencing growing pains in higher education as it is in other sectors of public life. The enrollment growth, present and predicted, the establishment of a new public two-year institution, the founding of two new private institutions, and the continuing demands upon existing institutions are putting pressure on the present organization and structure. Problems that have concerned educators for many years are becoming acute, and there are increasing calls for action now so as to avoid future chaos. Thoughtful Delawareans are coming to realize that meeting new demands requires more than the unilateral expansion of existing facilities and the establishment of new ones.

The following specific problems in Delaware's higher education can be alleviated by greater state-wide coordination:

- Inequities in the state's treatment and support of public institutions.
- Serious quality differences among the public institutions.
- Significant gaps in graduate and professional programs.
- Duplication in public institutions of low enrollment programs.
- Lack of definition of the role and scope of the two-year terminal and technical programs.
- Lack of communication among the public institutions and between them and the private colleges.
- Inequities in state programs of student financial aid.

When effective coordination has been established, Delaware will be able to achieve a more efficient structure of its higher education. It will then be possible to provide:

- A state-wide system of higher-education institutions more responsive to the needs of all its citizens.
- A much higher quality of programs at all levels of higher education.

- Appropriate levels of public and private financial support for all areas of education.

- Greater economy of operation and better utilization of expensive facilities.

- Maximum use of educational technology and other resources on a cooperative basis in public and private higher-education institutions.

Today higher education in Delaware consists of the following institutions and agencies:

1. *The University of Delaware*, a land-grant institution in Newark, is the only university in the state. Because of a large private endowment (estimated to be in excess of $107 million) and because of state statutory and constitutional provisions, it is able to operate in many ways as a private institution. Chapter 14 of the Delaware Code (quoted in part below) provides for a relationship between the University and the state which is unique in Delaware and throughout the nation. The freedom provided is of the kind under which the best higher education can flourish. Chapter 14 states that:

> *The Board of Trustees (of the University) shall have the entire control and management of the affairs of the University. The Board may exercise all the powers and franchises of the University, appoint and remove all subordinate officers and agents, and make by-laws as well for their own government as that of the University. Notwithstanding any provisions appearing elsewhere in the laws of this State which might suggest or provide the contrary, the entire control and management of the affairs of the University, which is conferred upon the Board of Trustees by the foregoing paragraph, shall be construed, in the area of fiscal and revenue matters, as including, but not as being limited to, the following powers and duties: all authority with respect to salaries and compensatory payments or benefits, as well as other terms of employment, of any and all University personnel, and individual salaries or salary increases or other benefits do not have to be reported or justified to any official or agency of the State (except to comply with applicable laws and regulations providing for preference in employment of laborers, workmen and mechanics who reside in the State and the applicable minimum wage requirements for public construction projects, and to cooperate in the ordinary way with the appropriate officials with respect to income tax and other tax matters); the management of all of the remaining fiscal affairs of the University, including the establishment of fees and charges,*

the collection thereof and the adoption of the University's budget, the establishment of all accounting and auditing procedures, (subject to the duty to obtain independent certified audits as provided in section 5109 of this title), the authorization, issuance and repayment of bonds or other obligations of the University; the selection of means and procedures for the deposit, investment, and control of all monies, funds, and securities which are now held or which may at any time be received by the University as well as the allocation, use, and reinvestment of the proceeds and earnings of any such deposits and investments and the right to commingle funds appropriated by the State with other funds of the University; the right to elect whether and to what extent to participate in programs of which all or a part of the costs are provided by the United States of America or by the State or any subdivision or municipality thereof; control of all matters having to do with the formulation of the terms of contracts for the construction of buildings or other University facilities, as well as the manner of awarding contracts or purchasing supplies and equipment; in respect to the purchase of supplies and equipment, regulations established by the State for bulk or central purchasing are not to apply to the University of Delaware unless the General Assembly expressly so provides, and in that case are to be understood as applying only to transactions involving the expenditures of monies which have been appropriated from the General Fund of the State; the planning for buildings and improvements and the extension or diminution of the campus or other land holdings are matters wholly under the control of the Trustees except where inspection or regulations may be provided for by law in respects involving the health or safety of the occupants of the buildings; where monies are appropriated by the General Assembly to the University, unless the General Assembly should expressly provide otherwise, they are intended to be paid to the University in equal monthly installments, and are not in any event to be cumbered by any procedures calling for pre-audit or other administrative control exercised by the Budget Director or other agency or official of the State.

The state pays 40 percent of the University's $30-million annual budget (including capital expenditures), requests for which are presented to the Legislature through the Budget Office and the State Planning Office. Also, one of the University's greatest strengths has been the generous private support it has received from those interested in furthering the work of the University. In addition to a large endowment fund, it reportedly receives over $11 million a year in private gifts, much of which has gone for the construction of campus buildings.

The benefits of this private support have been extensive, and have permitted the University to enjoy a variety of benefits which would have been impossible with public funds alone.

The board of trustees of the University also has some attributes of being private rather than public: of thirty-two members, four are ex officio, eight are appointed by the Governor, and twenty are elected by the board itself. Through its state-wide political and business connections, the University enjoys a close relationship with government officials, key political figures, and the leaders of private business and industry.

Although the University has many of the attributes of a private institution, it also has characteristics of public higher education. Out-of-state students are limited by agreement to 25 percent of the total student enrollment. Delaware residents pay lower tuition. As the only university in the state, the University of Delaware is responsible for all graduate and professional education provided in the state. At the same time it fulfills its function as a land-grant institution by offering a wide variety of full- and part-time courses in agriculture, business, education, home economics, arts and sciences, engineering, and others. Although it admits students specifically for two-year programs only in agriculture and secretarial programs, it grants associate degrees to students in all programs who have successfully completed two years and wish to leave school. The University also offers most of the extension and continuing education in the state.

The University of Delaware has had a splendid opportunity to be of great service to the state. As a public institution that enjoys extensive private financial support, the University has always had the best of the public and private worlds — practically string-free state support, an ironclad charter protecting its autonomy, and the necessary private funds to enable its board and administrators to assume a truly independent stance in the face of outside pressures. It is in an enviable position, and for an institution dedicated to the broadest possible responsibility for the higher education of all the state's citizens, it is unsurpassed in its potential. The University of Delaware possesses every possibility to offer truly creative, responsive, and all-encompassing educational programs with no legal or financial structures to stand in its way.

2. *Delaware State College* in Dover was established in 1891 as a land-grant college. Until recently it has served only the Negro community of Delaware. It offers the baccalaureate degree in liberal arts, business, home economics, agriculture, and education. There are no two-year or graduate programs. In contrast to the University with its large amount of private support and private control, the State College is wholly dependent upon the state Legislature and tuition receipts for

operating expenses and, except for federal aid, for capital funds as well. Its board is in part appointed by the Governor, with a minority elected by the board itself. Two members, the Governor and the president serve ex officio.

Today the State College is no longer a completely Negro institution; white students constitute approximately 20 percent of the total enrollment of approximately 800 students. A sizable number of students are from out of state. Estimates range from 25 to 40 percent, depending on the method used in determining a student's actual resident status. Large injections of state aid for new construction over the past fifteen years have helped to make it a better institution. Nevertheless, Delaware State College suffers from lack of planning, an insufficient operating budget, underpaid faculty and staff, programs of inferior quality, and too little autonomy.

The panel agrees with those in the state who feel that some change in the status of the State College is necessary. The question is, what kind of change? Three proposals have been made: (1) The State College should be given more autonomy to develop as a strong public institution; (2) It should be incorporated into the University as either a branch campus or as a facility for a specific program such as teacher education; (3) It should cease to function as a senior college, and its facilities should be used for another purpose — either as a junior college or as a technical institute.

Many Delawareans, Negro and white, who are interested in the immediate improvement of academic quality and the equalization of educational opportunity, would prefer to see the State College brought into the mainstream by incorporating it into the University in a way that would make the University's faculty, resources, and prestige available to the State College.

At the moment Delaware State College serves the state because it admits students as candidates for a baccalaureate degree, both Negro and white, who have only a high-school diploma, and through its "track" program it matches its standards to the achievment levels of the high schools and will change its standards only as the high schools do.

3. *The Delaware Technical and Community College* was established by the Legislature in 1966, opened the doors of its Georgetown branch in 1967, and its New Castle County branch in the fall of 1968. As stated in the enacting legislation, its purpose is to "operate public institutions of learning for persons who have graduated from high school or who are unable to attend public high schools." It is run by a seven-man board consisting of representatives from each county and Wilmington, and from the state at large. Six members are appointed by the Governor for three-year terms. The board chairman is separately appointed by and serves at the pleasure of the Governor.

In its first annual report the board stated that it proposed to establish a much needed system of two-year, open-door, comprehensive community colleges. As it is now operated, the Technical and Community College offers three groups of programs: (1) a two-year technical program leading to an associate degree; (2) a college parallel program operated under contract by the University; and (3) a general studies program, which permits students who qualify for neither the college parallel nor the technical program to obtain remedial work so that they may enter either of the other programs.

To its credit the administration of the Technical and Community College has devoted a great deal of its time to establishing cordial relationships with Delaware industry, so that the institution can expect industrial support for its programs. In return it will be able to provide trained manpower for which there is such a great need.

The Technical and Community College occupies a special place in the eyes of the state Legislature. Its appropriations are budgeted under "public education," a category that includes the State Board of Education, the Vocational Board of Education, and the educational television station. Its combination of post-secondary curriculums, a stated purpose to educate those unable to attend high school, and the special status that it has under the state Legislature, gives the Technical and Community College a great deal of flexibility. The danger is that in the absence of any state-wide coordination of higher education, the programs of the Technical and Community College may overlap needlessly with those offered by either the University or the growing programs of outstanding vocational-technical instruction at the high-school level.

4. There are three private two-year colleges in Delaware, a four-year college that opened in the fall of 1968, and a non-degree-granting institution for women. They are:

a. *Wesley College:* A two-year college in Dover supported in large part by the Methodist Church, Wesley College is the oldest private institution in Delaware. It offers an associate degree in the liberal arts, in business administration, and in nursing. In 1967-68 one-sixth of its 648 full-time students were residents of Delaware; in ten years the college hopes to increase this proportion to one-third. Although financial difficulties threatened to close it in 1957, Wesley today is stronger than ever and is expanding its facilities and enrollment. It has a summer program and an adult-education evening program offered on campus and also at the Dover Air Force Base. Wesley is now playing a larger, if limited, part in higher education in Delaware.

b. *Brandywine College:* Only two years old, Brandywine is a rapidly expanding two-year institution of about 1000 students. Basically, it is a business college that emphasizes the ancillary features of a collegiate education. Future plans include the enlargement of the liberal arts program and an enlarged program of services to meet the local industrial, business, and government manpower needs, through appropriate training programs on a full- and part-time basis.

c. *Goldey Beacom Junior College:* A proprietary two-year college located in Wilmington, Goldey Beacom trains young people in business skills. Recently it received permission from the Legislature to grant the associate degree.

d. *Wilmington College:* Opening in the fall of 1968, this new college has taken its first steps toward state accreditation as a four-year institution. Wilmington College is aiming to attract the student who can afford to go away to college for four years, but whose high-school record and test scores indicate that he probably would do better in a small college providing a great deal of attention to the average student. It will offer courses in English, political science, and business administration, and probably draw most of its students from out of state.

e. *Alma Moore College:* Recently established to meet the long-neglected educational needs of the mature woman, Alma Moore College in Wilmington is making an innovative contribution to the growing field of continuing education. Course offerings, scheduling, and administrative procedures have been tailored to meet the needs of women who want to gain more education, but who do not wish to re-enter the traditional academic community.

5. *The State Department of Public Instruction.* Primarily responsible for public elementary and secondary education, the Department of Public Instruction through its Teacher Education and Professional Standards Division also has responsibility for higher education in Delaware through Section 124 of Title 8 (General Corporation Laws), which states that no corporation shall confer an academic or honorary degree unless it has been approved by the State Board of Education. A recent court decision designating an associate of arts degree to be an academic degree has meant that all private two-year institutions must receive the approval of the State Board of Education. Procedures for receiving accreditation from the State Board of Education are like those for regional accreditation. The State Board of Education has no

authority to establish or forbid the establishment of an institution; it acts only when an institution seeks accreditation. It is also responsible for approving all teacher-training programs offered within the state.

6. *The State Board for Vocational Education.* Although the membership of this board is the same as that of the State Board of Education, there is a legal separation of the two functions. The involvement of the Board for Vocational Education in higher education derives from its responsibility for federal programs of vocational-technical education in Delaware.

7. *Delaware Educational Television Network Board.* The nine-member Educational Television Network Board is responsible for general policy governing the use of educational television in the public schools of Delaware, and in the public institutions of higher education. It includes representatives from the State Board of Education, the University, the State College, and the Technical and Community College. Six members of the Educational Television Network Board must also be members of the State Board of Education, although the board itself is independent from the State Board of Education. The State Superintendent of Public Instruction serves as the executive officer of the board.

8. *The Higher Educational Aid Advisory Commission.* This state commission, authorized by the federal government, consists of members broadly representative of Delaware higher education and the public. They are appointed by the Governor to dispense federal facilities funds to institutions of higher education in Delaware under the Higher Education Facilities Act of 1963. The commission has recently assumed responsibility for the Federal Guarantee Loan Program, with which it is assisted by a three-man governing committee made up of student-aid officials from public and private higher-education institutions in Delaware.

The panel observed a number of growing problems in higher education in Delaware. Some are acute; others are not so much problems as situations that the panel feels will become real problems in the next ten years, given the pressures on higher education today. Still others are problems only to certain segments of the population, which so far have had little to say about the organization of higher education.

No one institution or agency is now empowered to deal effectively with any of these problems. The panel feels that if the State of Delaware intends to affirm its belief in the right to higher education for all its citizens who are qualified to receive it, then it must bring to bear all its available resources in an organized manner and on a state-wide basis. Otherwise problems will go unrecognized by those who have the authority and resources to solve them; resources may be insufficient for the support of programs that are not efficiently planned; and the citizens of Delaware will not receive the higher education that they want and that state officials and educators would like to give them.

There is lack of evidence at the public institutions of truly comprehensive planning for the future, or in many cases the lack of published plans for operations in the next one or two years. The panel fears that planning in the higher-education institutions in Delaware is done only as a response to outside requests, and then the planning is too often regarded as a necessary evil that must be submitted to higher authorities in order to secure needed funds.

The State College's limited financial resources and inadequate staff mean that whatever planning is projected gets done in the state planning office or by the state-appointed firm of architects. There is little evidence of any established procedure to identify needs, appraise existing resources and determine future demands that would lead to a logical plan for future programming.

Although specific comparisons are difficult, the panel doubts that state support to the State College is commensurate with that provided the University, especially considering the years of state neglect of the State College. The panel questions whether the different procedures for requesting state aid lead to equitable and efficient support today; it believes that current methods of assigning state funds will not be adequate for the future.

The Academy panel was assisted in its inventory of facilities at the University of Delaware by the staff of the University's planning office. With the involvement of the highest university officials as well as those responsible for assessing state needs and programs, the panel feels that this office could become the center for the kind of truly comprehensive planning that must be the basis for an effective state-wide system of public higher education. Even at the University, however, the planning for any period of time is usually based on student and faculty projections with little relation to new educational ventures and projects.

As the only higher-education institution in Delaware with a graduate school, the University is responsible for all graduate and professional education. Although within its own program there exists a balance between undergraduate and graduate programs, the panel feels that when they are considered in terms of state-wide suitability, the graduate programs in the areas of education, economics, business administration, social sciences, humanities and the arts, urban affairs, and health services can all be improved.

The panel noted program duplication between the University and the State College in the areas of teacher education, home economics, and agriculture. Without some kind of cooperative planning, there is evidence that future programs (such as police-training programs) will also be duplicated at various institutions and continue the financial drain caused by inefficient planning.

The panel was impressed with the energy and political acumen of those at the head of the developing Technical and Community College, and especially with their efforts to gain support from Delaware industry. Establishing a new public institution in a relatively new field presents a number of immediate problems, only some of which are purely educational. The panel recognizes the progress that the Technical and Community College has made in its initial programs for expansion, but would add that to maintain flexibility the institution will have to develop some long-range procedures to identify changing needs. While it may be necessary to make immediate decisions from day to day, the panel feels that long-range planning must be made in conjunction with other institutions of higher education. This is especially important in light of the tenuous position the Technical and Community College holds in Delaware, midway between an outstanding secondary vocational program and the four-year university. The lack of any real tradition for the scope of a technical community college provides flexibility for future plans, but no guidelines. Such guidelines must be established by cooperative planning with all elements of higher education in Delaware, as well as with the representatives from business and industry.

The panel feels that the Technical and Community College's expanding program of two-year technical courses will call for continuing coordination of both public and private institutions to make certain that needless duplication is avoided. As the number of two-year institutions grows in Delaware, and throughout the nation, there is an obvious need to coordinate the programs of public and private two-year institutions with University requirements to permit a flexible program for those two-year students who wish to go on to the University. The responses to Academy questionnaires sent to faculty members at two-year institutions indicate that this is of prime concern in Delaware today.

There is also some indication that post-secondary technical training at the Technical and Community College duplicates the subjects offered in the growing secondary program of vocational instruction. There are instances of overlapping that reveal the need for greater coordination of secondary and post-secondary programs.

Not only is Delaware exporting a large proportion of its high-school graduates (approximately one-half) to out-of-state institutions, but a survey prepared by the University's Division of Urban Affairs for the Higher Educational Aid Advisory Commission indicates that two-thirds of the students with A averages plan to attend out-of-state institutions. This means a possible loss of the most promising talents from

Delaware when these students graduate, and a lowering of academic achievements in Delaware institutions.

Although some institutions in Delaware have or are planning to offer special "beef-up" programs for those unable to qualify for higher education, there is too little concerted effort to supply enough programs of this kind. Only state-wide coordination on every level would enlarge the opportunities for Delaware high-school graduates to participate in appropriate programs of higher education.

The panel found that there was no state-wide agency to assess the present educational programs and the need for new programs designed to meet the needs of students from the emerging social groups in Delaware. Because of the present rapid shift in Delaware's economy from rural to urban, with the resulting stresses on all segments of society, a procedure for the continual state-wide assessment of curriculum and public service needs is mandatory.

An urgent problem is the education of Delaware's minority groups: repairing the deficiencies resulting from inequalities in high school, and providing equality of opportunity for study in all parts of higher education. The situation is made more difficult in a sense by the existence of an institution that was originally founded expressly for the purpose of educating Negroes, with the clear expectation that they could not meet the University's standards. The panel feels that this dilemma must be considered the responsibility of the entire state, and must be decided upon by all segments of the state that are concerned with higher education.

In a society developing as fast as Delaware's, it is almost inevitable that changing population patterns should make obsolete the location of certain academic facilities. The State College, which serves Negroes for the most part, is some distance from the urban center of Delaware, where Negroes are now migrating in increasing numbers. The Greater Wilmington Metropolitan Area, the most heavily populated area in the state, has no complete higher-education facility. The panel feels that only through state-wide coordination will higher education have the flexibility to respond to these changes.

The proliferation of federal programs to aid higher education also calls for greater coordination at the state level. The Higher Education Facilities Act, the Education Professions Development Act, the Vocational Education Act all offer funds to various facets of higher education. Funds available under these acts can be utilized more efficiently, at least in the public education sector, if there is a better working relationship among the public institutions and between them and the private institutions. The philosophy behind Delaware's Right to Education Act should be extended beyond the University to students of other public and possibly private institutions of higher education. State student-aid funds have not kept pace with the rising costs of education.

The Delaware Educational Television Network has enriched the educational programs of all schools. Through increased coordination with the institutions of higher education, educational television could make a similar contribution in many areas of public and private post-secondary instruction: on campus, in extension and continuing education programs, in laboratory teaching situations. And it could participate in interstate cooperation. A greater interrelationship between higher education and the educational television network is a necessity. The benefits should be readily available to public and private institutions alike.

Though civic agencies and citizens' organizations have pinpointed manpower needs in various fields, there is little evidence of their recommendations having an effective impact on any institution of higher education. There are today critical needs in education, health services, and subtechnical training, but no clear assignment to any state agency to fulfill these needs. Only a coordinated effort by the higher-education institutions in the state could inaugurate such programs to meet the changing manpower needs in Delaware.

Because of Delaware's size and location, greater efforts should be made to increase cooperative arrangements between the University and out-of-state institutions. For instance, the arrangement among the University, Jefferson Medical College, and the Wilmington Medical Center provides services of mutual benefit. Maximum advantages would result if all publicly supported higher education were to make joint plans for cooperative ventures.

Although the University has done some planning for future facilities, its officials feel that additional data would make these projections more meaningful. No other institution in the state seems to have done a comparable amount of planning. Rising costs and the demand for new facilities in the face of insufficient public funds require the most comprehensive planning to ensure that the best facilities are obtained for the money spent. The panel feels that this kind of planning can be done only as a concerted effort by all the agencies and institutions of higher education.

Although the University has so far assumed the major burden of research and development conducted by higher-education institutions, the need to increase these programs — especially those that will aid the development of the state's economy — calls for the cooperation of all of Delaware's higher-education institutions.

No institution can be strong if its faculty salaries and benefits are not comparable with those of other schools. Salaries at the University must rise if it is to be competitive nationally, and so must those at the State College. The inequity between salaries at the University and at the State College is disturbing. Equal educational opportunity requires that the faculty be comparably strong throughout the state's institutions. Salary scales must also be made more equitable than they are for administrative and maintenance personnel.

As the cost of administrative and other nonacademic services continues to increase, effective coordination can bring about substantial savings in the operation of existing programs over the next ten years — in the panel's judgment perhaps as much as 25 percent — when compared to the cost of continuing separate unplanned systems. Of course, one of the most important benefits of increased coordination would be the possibility to develop the new programs and services that the panel believes are needed.

The panel recognizes the importance of the contribution being made by the private institutions to higher education in the state. Ways for enhanced cooperation should be continually explored. As improvements are made based on the recommendations contained in this report, new opportunities for cooperation between the public and the private institutions will be presented. Examples of possible cooperation are the sharing of educational television resources and of academic programs and facilities, joint use of computers, a pooling of library resources, faculty exchanges, and joint seminars.

Many prominent Delawareans are participants in a great deal of informal state-wide coordination of higher education. The Governor, certain committees of the Legislature, educational agencies of state government, and the trustees and officers of the various institutions are active in this informally coordinated effort. The panel was duly impressed with the excellent relationship existing between the government and various segments of Delaware's higher education, and feels that all involved are to be commended for the progress that has been made through these informal arrangements. The small size of the state has encouraged such informal arrangements. The cooperation between representatives of private wealth, state government, and education — primarily at the University — has been of great benefit to the welfare of the state. In its evaluation of the adequacy of such arrangements for the future, the panel would only offer the following observations:

- As new groups in Delaware seek a share in higher education as their right, and as they call for programs to meet their growing needs and desires, there must exist a channel through which their voices can be heard. Informal agreements and personal friendships that in the past have served to facilitate educational development do not guarantee that emerging groups and interests will be represented.
- An essential element of a successful educational system at any level is a certain amount of ferment, a continual questioning of accepted values in response to new ideas and situations. If higher education is directed largely by men of similar ideas in an informal structure that discourages dissent and the presentation of fresh points of view, the

danger is that the ease with which programs are presented, adopted, and executed will have been at the expense of discussions and debate in which conflicting but constructive ideas and opinions could have been heard, evaluated, and acted upon.

As a result of these considerations, the panel considered various possible boards or agencies for state-wide coordination that would serve Delaware best in the years to come. The essential functions of such a board would be:

1. Establishing the role and scope of each public institution, existing and proposed.
2. Reviewing and recommending operating budgets and requests for capital improvements for all higher education.
3. Reviewing and approving new programs.
4. Coordinating the use of educational media and other resources.
5. Appointing the chief higher-education officer for public institutions.

The following alternative plans were evaluated by the panel in terms of their ability to carry out these five functions within the social, political, and educational structure of Delaware:

1. *Continue the present system of informal coordination.*
2. *Modify the present system by holding periodic and carefully planned conferences involving high-level representatives of public higher education including board members and the presidents.* Private-college presidents might be asked to attend as observers. The Board of Education would come into the picture only in those matters relating to teacher-education programs and the setting of certification standards for teachers.

The Educational Television Board would be responsible only for setting guidelines for the development and use of television in the public schools. Television in higher education would be primarily the responsibility of the individual institutions, as are all other instructional activities. However, in the regularly scheduled coordination meetings, television use and television programs would be reviewed so that each institution would essentially be making its own unique contribution in this area.

The Governor and the Legislature would monitor developments and procedures in this voluntary cooperative approach to coordination of higher-education activities. Failure on the part of the boards and institutions to achieve coordination would suggest that a statutory-based coordinating board be empowered to bring it about.

In presenting budgetary and capital improvement requests to the Legislature, the three public institutions would follow similar and cooperative procedures, and the presentations would be made at the same time rather than separately. All of the institutions would follow consistent procedures for reporting on enrollment and space use, and for all other studies and reviews upon which estimates of fiscal needs are based.

3. *Establish a statutory coordinating board comprised of representatives from each governing board as it now exists.* The functions and responsibilities of such a coordinating board would need to be carefully defined by statute so that it would not needlessly reduce the effectiveness of the boards of trustees of the three institutions. The function of the board should be restricted specifically to those matters having a direct bearing upon the institutions working together in meeting the needs of higher education throughout the state. The representatives from each institution's board would not exceed three individuals. Because of the importance of the jurisdiction of the Delaware Board of Education in matters involving the public schools and the training of teachers, consideration should be given to including three representatives of that board. These might be the president of the Board of Education, the vice-president, and the secretary, who is also the State Superintendent of Public Instruction. Since the Governor is an ex officio member of the institutions' boards, he would also be an ex officio member of this type of coordinating board.

Administration of federal aid under the Facilities Act and student scholarships would not be included in the duties of this coordinating board but would be handled by the Higher Educational Aid Advisory Commission or by the State Board of Education working with the presidents of the individual institutions.

4. *Create a coordinating board of nine to eleven members comprised of outstanding citizens who are not members of any of the boards of trustees of the several institutions.* These members would be named by the Governor with the consent of the State Senate and would serve on staggered terms for six to ten years. This board would have its own staff, made up of competent administrators and professional people who could provide essential data for the coordinating board to discharge its responsibilities.

The boards of trustees and the administration would have full responsibility for operating the institutions under budgets provided by the Legislature with the role and scope for each institution set by the coordinating board.

5. *Establish a Coordinating Council, consisting of a majority of lay members appointed by the Governor and confirmed by the Legislature, with a minority of members from the boards of the institutions.* This council should have a staff similar to that of the above alternatives.

6. *Establish a coordinating board comprised of representatives of the board of the University of Delaware, the board of the Technical and Community College, and the State Board of Education.* Under this plan Delaware State College would become a branch of the University of Delaware and therefore would not have a separate board of trustees. As a branch, the State College would be directly responsible to the governing board of the University. In the delineation of the role and function of the University and of the southern branch, the Newark campus would be responsible for undergraduate and graduate programs, research, services to the community, and land-grant programs; the campus at Dover would have responsibility for undergraduate programs in liberal arts, business administration, teacher education, home economics, and such land-grant activities and other undergraduate programs for which there is a justified need.

7. *Create a University system.* This plan would ask the University of Delaware to be responsible for all programs of public post-secondary education in the state; to plan and conduct public post-high-school education in a manner consonant with established needs and the wide purposes of such programs in branches, centers, or other suitable facilities; to plan and operate programs of extension service and continuing education; in effect to respond, within the resources furnished to it, to the state's total needs for post-high-school education.

Such a plan would operate under a single governing board, a president for the University system, and separate chief officers for the various campuses and colleges. The president of the system could draw upon the special resources of the several campuses for research and expert advice, as needed, in determining the educational needs of the state and drawing up recommendations for accommodating those needs. The several campuses would have separate missions, and the president would be responsible for the development of excellence in all parts of the University system. The chief campus officers and their instructional staffs would be accountable to the president for the performance of their special missions. Such a plan would make it possible for all students in Delaware public higher education to attend some campus of the University of Delaware. It would unify command, establish accountability, and broaden the base of support for the University.

The panel selected the plan which in its opinion will permit Delaware educators and legislators best to achieve the following:

1. Provide a state-wide system of programs and services that encourages each person to go as far educationally as his capacity and interest will take him.

2. Permit individual institutions to develop programs consistent with state needs and each institution's unique strengths.

3. Assure efficient use of public funds through budgeting and planning procedures that will permit accurate evaluation of the costs of alternative programs.

4. Establish lines of communication between higher education and the public through which the needs of each will be known to the other.

5. Plan for the orderly development of new institutions or programs.

6. Achieve appropriate recognition as the agency responsible for the growth and maintenance of higher education by the Legislature, government officials, political leaders, institutional heads, faculty, students, and the general public.

7. Work toward all appropriate cooperative arrangements between educational and noneducational institutions.

8. Provide for the effective disbursement of federal funds, and the administration of federal programs as may be required or desired at the state level.

Recommendations

Delaware's size and the number of its institutions argue against the formation of an agency or superboard to coordinate higher education, but informal coordination in the panel's judgment will fail in the future to produce the best possible higher education for the state. The University holds the position of power and prestige in higher education in the state. Therefore it should use its authority and prestige to give leadership to all public higher-education institutions within the state. The superior advantages of the University should benefit all public higher education in Delaware, so that critical issues can be met by the most able minds with all available public and private resources. The University should resolve to meet all the needs of people in Delaware who seek post-secondary education, and establish methods and procedures through which it is accountable to the people and the state for its actions while maintaining its autonomy.

1. *It is the panel's recommendation, therefore, that the University of Delaware be made responsible for all public post-secondary education in Delaware* (Alternative 7).

2. Each institution of public post-secondary education (and any future institutions) should be made a campus of the University of Delaware, to be headed by an officer appropriate to the level of education offered.

3. The panel does not recommend a numerical expansion of the present board of trustees of the University, which may already be too large, but suggests the board be reconstituted to include representatives of all the diverse educational interests within the state. The panel believes that, given a wider set of responsibilities, such a board would discharge them with the same judgment and skill that it has shown in the past.

4. As immediate steps to ensure state-wide representation in all decisions made by the University, the panel recommends the permanent establishment of:

   a. A state-wide faculty senate representative of all public post-secondary institutions.

   b. A committee of the heads of all University campuses to act as advisers to the president of the University.

   c. A local advisory committee for each campus to facilitate communication between the community and the campus.

5. The panel recommends that all necessary administrative steps be taken to provide maximum cooperative use of libraries, special resources, and expensive equipment; and to facilitate, on an increasing basis, the interchange of faculty from one campus to another.

6. The expanded University should take all steps necessary to ensure that the administration of its private support continues to be in accordance with the donors' wishes. It should also seek increased private support for its new responsibilities.

7. State-wide officials of the enlarged University will especially want to assure that the areas of strength in programs, faculty, and administration already present at the Dover campus are supported and reinforced. There are certain problems at this campus to which priority must be given once the enlarged University is created. These include:

a. The development of a master site plan for the Dover campus as a part of the University.

b. Special efforts to assure the early interchange and participation of the Dover faculty and administration in the affairs of the whole University, especially on the Newark campus.

c. Improved instructional support.

d. Improved maintenance arrangements for buildings and grounds.

The panel recommends that neither Dover nor any other campus of the expanded University become or remain predominantly a Negro institution for any extended period of time. The panel believes that some time — two to four years — may be required to coordinate completely the campus activities at Dover with those of Newark and elsewhere. Delaware should have fully integrated campuses throughout the state just as soon as possible. The panel also recommends that in developing the plans and the future administration for higher education Negro leaders should be included at the highest levels.

8: The panel recommends that the Higher Educational Aid Advisory Commission continue in its present role, and that in the future it:

a. Seek *ad hoc* advice on educational problems that are submitted to it by the University and others through the use of committees and consultants.

b. Involve people in an advisory and membership capacity who have breadth of interest and expertise in a variety of appropriate backgrounds, from business and industry as well as the fields of public service.

c. Administer the federal programs in its jurisdiction. The panel believes that it would be appropriate for the commission to coordinate all federal programs to aid higher education that require the participation of public and private institutions.

d. Represent the needs of both public and private institutions to appropriate public officials, both state and federal.

e. Serve public and private institutions in an advisory capacity.

9. Charters of incorporation for new private higher-education institutions should not be issued by the state without prior approval of the State Board of Education.

Updating Curriculum Programs

More than any explicit catalogue statement, the content and variety of courses offered reveal the real goals of an educational institution. Today in Delaware as elsewhere in the country there is demand for curriculum re-evaluation and reform as well as the insistence that higher education relate to the needs of modern society and its problems. These pressures for change clash with those of the traditionalists who prefer the status quo in the form of the classic liberal arts curriculum, land-grant agricultural programs, adult education, or teacher education.

Unfortunately, even a cursory examination of the catalogues of many colleges and universities shows a hodgepodge of courses that are a heavy burden on public and private resources. Consequently the quality of instruction suffers and funds are lacking to carry out new curricular programs. In the absence of clearly stated goals by the institution, programs have been introduced, expanded, amended and too infrequently eliminated in response to strong pressures.

The administration and faculty of higher-education institutions are themselves often confused about the respective goals they should pursue. In response to the Academy questionnaire on this subject, faculty members in Delaware replied with phrases such as "educate the whole man," "provide academic and social development," "introduce students to cultural endeavors," "instill a sense of judgment, maturity, and the ability to question." They emphasized the need of their institutions to "offer vocational training," "provide instruction to enable the student to do well in his life work," "strive for excellence in academic instruction," "provide more advanced-degree work." The panel noted that some University faculty members stated that the University has a responsibility to provide vocational training and, conversely, some junior-college faculty members felt that they should give their students more instruction in liberal arts. As one junior-college instructor expressed it, "Our institution should provide employment preparation in a collegiate setting." Rising enrollment and costs, the need for new programs, the continuing struggle to maintain quality in the face of greater numbers of students and courses — all require clear definition of goals and coordination of planning efforts to achieve those goals.

The pattern of higher-education curriculums in Delaware today reflects the quandary facing most colleges and universities: how to respond to new curricular demands within the limitations of an outdated structure. For many years the University of Delaware has been the principal public higher-education institution in the state, and the State College has offered a limited program, largely for Negroes. Until now it was felt there was little necessity to coordinate the two institutions. Today, however, circumstances have changed. The State College has for a number of years been the recipient of large state and federal grants, which have upgraded its facilities to the point where it aspires to offer a diversified program of quality higher education to a racially integrated student body. The establishment of the Technical and Community College last year — with branches envisioned for each county — adds another dimension to higher education in the state. Private education is also beginning to prosper in Delaware: one junior college was opened two years ago, and a four-year college opened this fall.

Within this framework, panel members and consultants compared the programs currently available in Delaware's higher education in order to assess their diversity, locations, adequacy of future planning, degree of coordination between institutions, and the need for program additions or deletions. The purpose of this evaluation was to determine the extent to which curricular programs will have to be revamped to comply with the panel's proposal for an expanded University.

The Two-Year Programs

The University at its Newark campus offers associate degrees in agricultural engineering, agricultural sales, animal science, chemical technology (being phased out), marketing and food distribution, ornamental horticulture, plant science, secretarial studies, and soil and water conservation. It also awards an associate degree to any student in a four-year program who withdraws in good standing after two years. In addition, the University provides freshman and sophomore instruction in business administration, education, and the liberal arts — on a contract basis at the Georgetown branch of what is at present the Technical and Community College.

The Technical and Community College at its Georgetown branch offers associate degrees in business-administration technology, civil engineering, data-processing technology, drafting and design technology, electronics-engineering technology, industrial-electrical technology, mechanical-engineering technology, technical-secretarial technology, with plans for offering library-science technology and academic training for nurses in cooperation with the Beebe Hospital in Lewes. To date, the Technical and Community College has demonstrated its willingness to plan programs that are needed by the industrial community of Delaware, and thereby it is carrying out one of its stated objectives, community service.

The private two-year colleges in Delaware offer associate degrees in business administration, the liberal arts, nursing, and a growing number of service occupations.

The panel could not find any adequate arrangement for coordination or joint planning of two-year programs *between* the public institutions. Such coordination will be very important in the future. Because these two-year programs are new in Delaware without any tradition or precedent, the University has the opportunity and the responsibility for pursuing new educational directions. Of course, in structuring these programs careful planning must take into consideration present and future needs.

The outstanding secondary vocational-technical centers currently being developed by the state have equipment and programs of a very sophisticated nature, in some areas more so than those being offered by the Technical and Community College. The future expansion of curriculums at both the secondary and post-secondary levels should be planned with close cooperation between the two levels. When the University is unified state-wide as proposed by the panel, it will be possible to improve and coordinate all the public programs of a two-year technical or terminal nature. With the opening of the New Castle branch, there will be an opportunity to move some of the two-year programs from Newark to this new campus.

Evaluation of the Four-Year Programs

The undergraduate program provides the character and style of most higher-education institutions. It is the undergraduate program that provides students with a liberal arts education or preparation for professional studies. And it is the undergraduate program that is experiencing such tremendous admissions pressures and that can expect even greater pressures in the future.

The two public institutions that offer a baccalaureate degree in Delaware have curriculums that are designed for and at the same time are shaped by the distinctive needs of their student bodies. Today it is apparent that students in the future will have a greater effect on the academic programs offered, and their desire for a piece of the action will have to be recognized in planning for these programs. In Delaware, as in the rest of the country, the new spirit among students who want to participate will have far-reaching effects on educational programs. The panel expects some of these changes will be:

> A wider range of ages in the student body. Promising high-school students will have more opportunity to pursue higher education at an earlier age. More opportunities for educational experiences outside higher education will cause many students to enter college

later, drop out for specified periods of time, and then continue their education to higher levels.

As higher education becomes a right of all citizens, the abilities of tomorrow's student body will be more varied and their interests will also be broader.

Tomorrow's student activists, besides being interested in shaping their educational programs, will wish to enlist the services of their universities in social problems beyond university walls. This activism, however, may be balanced by the conservative orientation of those coming from groups that have never before sent their children to college.

Students will have broader socioeconomic backgrounds, as access to higher education becomes easier for the disadvantaged.

In the future students may attend two or three institutions in the process of completing their undergraduate programs.

The Current Scene in Delaware

In their survey to make recommendations for Delaware's future higher education, panel members and consultants made the following observations of the current educational scene:

1. Immediately apparent to the panel was the sharp contrast between baccalaureate programs at the two four-year institutions. Although it was impossible to go into an exhaustive comparison of the quality of the two academic programs, the panel feels that the inequity in faculty salaries, operating budgets, and admission requirements guarantees that the programs offered by the State College cannot match the quality of those at the University. Although the State College graduates approximately one-third of all certified teachers in the state each year, the panel doubts that the level and quality of their preparation could possibly be equal to that offered at the University.

2. Teacher education, discussed in this report, has expanded recently, but still falls short of supplying teachers in the quantity needed by the state's public school system. In addition, certain fields — vocational-technical education, urban education, special education — will be of great importance in the future and should be represented in teacher-training programs offered by the University.

3. The panel concurred with school, state, and university officials who felt that the University's and the State College's student-teaching programs do not reach many of the schools that would benefit from the programs and at the same time would provide meaningful experiences

for the student-teacher. This is a problem that can be solved only by cooperatively planned programs, financing, and scheduling, with the participation of the University, the Board of Education, and the state and local governments.

4. The panel questions the advisability of placing the University's early childhood development program in the School of Home Economics. Recently passed legislation providing a limited number of state-supported kindergartens will certainly increase the demand for kindergarten teachers. The panel feels kindergarten teachers should be trained in a broad educational program that includes both preschool and primary education training.

5. There are areas of wasteful overlap in home economics and in agricultural sciences at the University and the State College.

6. The State College is filling a real need in higher education in its "track" program, especially since in some sectors of Delaware it is felt that the University has restrictive admission standards.

7. The undergraduate program at the Newark campus is in general too widely scattered, with too many specialized courses required during the first two years. This prevents students from acquiring a sound basis in general education (humanities, natural and social sciences). In the enlarged University there should continue to be upgrading of the quality of instruction in general education at all campuses.

8. Under the expanded University, the panel feels consideration should be given to the establishment of area-studies programs to fulfill the need in the field of international understanding. These could be comprehensive interdisciplinary programs organized around world cultures — the Western European community, sub-Saharan African culture, Latin-American culture, Asian studies, to name only a few — and could draw on many state and regional resources.

9. Consultants to the panel were told by representatives of Delaware industry that a new engineering program is needed, less highly specialized than those currently offered at the University, but on a higher level than those offered by the Technical and Community College.

10. As higher education prepares for the challenges of the future, the panel feels that the expanded University will want to encourage interest in urban studies. Possibilities are discussed in greater detail in the chapter, "Toward an Urban University."

Graduate Education

In its review of graduate education in Delaware, the panel examined present programs in the light of future needs of the proposed expanded University. The panel noted the excellence that has been achieved to date at the University in many areas of the graduate program due to cooperation between public support and generous private backing.

The strongest graduate program in the University is in chemical engineering, with the mechanical engineering and aerospace departments rapidly gaining high ranking. Electrical and civil engineering are less well developed, the latter in part because of its broad character. The panel expects that these departments will be carried forward by the momentum already present in the University. The panel feels that the large number of doctoral degrees awarded by the chemistry department, in relation to other University graduate programs, together with the special funds at its disposal, indicates that a continued strengthening can put it in the forefront of graduate education in the expanded University.

The physics program has improved notably in recent years, and although not yet well known by the academic community, it has begun to get grants, expand its research, and increase its number of graduate students.

Under the expanded University, there will be a need for the graduate program in biology at the Newark campus to develop strength and depth in its research. The panel feels that state-wide strengthening of biology at all levels is needed because of its importance to other disciplines, especially the health sciences.

The mathematics department produced thirteen master's degree graduates last year, but no doctorates. It appears to be adequately servicing the needs of other graduate programs dependent upon it.

The College of Agricultural Sciences is increasing its enrollment slowly, 3 to 5 percent a year, and now has 424 students. Sixty percent of its enrollment is urban — students looking to careers in agricultural, fertilizer and food-machinery industries. As the University is a land-grant college, this school operates in connection with an agricultural extension program. The panel feels that the school is alert to new developments and doing a good job for the state. Aided by research funds from the United States Department of Agriculture, it will continue to be active in applied research problems, but its graduate work will probably be for the most part at the master's level, an area in which there is a considerable spread in the spectrum of agricultural sciences. Students wishing to continue to doctoral work seem to move to one of the larger agricultural universities.

The panel was impressed with the standards, the stimulating atmosphere, and the quick placement of graduates in the art-history program, which works closely with Winterthur Museum in a program for the training of museum directors.

Language instruction is grouped in one department, modern languages. Plans are being made to develop a doctoral program in French. In the state-wide University, language instruction should be planned in close cooperation with all campuses and departments that offer programs in which foreign languages play a part.

The psychology department granted nine master's and three doctoral degrees last year. Plans are under way to add clinical psychology and industrial psychology to the department.

In view of the wider scope that the expanded University will bring to the social-science programs, the panel feels that state-wide re-evaluation of present curriculums is necessary to determine the kinds of programs that will be needed in the future:

1. Enrollment in the University's College of Business and Economics is now high (875 undergraduates and 250 graduates), with most of the graduates, however, studying part time. The Newark campus should re-examine its program to determine the extent to which it can be coordinated with offerings at other campuses throughout the state when the University becomes state-wide. Certain programs in business might be better offered at the New Castle branch.

2. Under the expanded University, the political science department at the Newark campus will need to improve and broaden its program so as to contribute to the growing areas of urban affairs and area studies.

3. The rapidly growing sociology department will become increasingly more involved with local, state, and national problems through strong research programs in these areas.

4. The College of Education has yet to offer a doctoral program in education. This leaves a real gap in the training of administrators and high-level educators for educational posts throughout Delaware.

5. The University has proposed to establish a separate graduate program for the teachers who wish to continue their higher education but who fail to qualify for the graduate school's regular program. If it is true that teachers certified to teach by the state are unable to meet the admission requirements of a state-supported graduate school, the panel feels that a serious re-examination should be made of both state certification and University admission requirements before such a program is implemented.

6. One of the brightest spots in the University's program is its Division of Urban Affairs. Supported in part by the Ford Foundation, with supplements from fees for its services, it has been conceived by the University to provide a strong program of public service. The division

provides for at least two fellowships per year to each of the three social-science departments.

7. A continuing question in graduate education in Delaware is whether the University should establish a medical school. The Academy, in its 1965 report, *Reaching for Greatness,* offered the following recommendations:

> a. "It is the Academy's belief . . . that in the light of the foregoing conclusions as to the opportunity for Delaware's students to choose a medical career and the adequacy and quality of medical care and health services in the state, there is no present justification for establishing a tax-supported medical school in Delaware.
>
> b. "The Academy . . . recommends that the University keep under active consideration the opening of a complete new medical school, with clinical facilities, in 10 to 15 years. As part of the long-range planning by the state and University, there should be a continuing assessment of facilities and financing required for starting and operating the school, particularly in the light of the developing economy and the growing population.
>
> c. "The Academy . . . recommends that the University give special attention, in the further development of its graduate work, to those areas of teaching and research that offer a foundation for medical education, particularly the biological and physical sciences."

The present panel endorses these recommendations, and cites recent developments that are helping to clarify the situation:

> The University has established a College of Nursing, which for the first time this year offers a master's program in nursing.
>
> A training program that includes some of the allied health professions has been established, but no separate school has been created yet.
>
> The University has entered into an agreement with Jefferson Medical College in Philadelphia to accept students who have completed their premedical work at the University. Tuition for these students will be paid by the state of Delaware.
>
> The recently established Wilmington Medical Center is part of this agreement. The center is in the process of consolidating and expanding its present facilities, possibly into the Newark area.

A 1967 health manpower study conducted by the Community Services Council of Delaware indicated that more than 7,200 new personnel will be needed in various health manpower categories in Delaware in the next ten years. The University must assume the major responsibility in contributing to meet this need.

National Trends in Curriculum Programs

The panel made its recommendations for future curriculums for Delaware's higher education on the basis of the above observations, and on the following national trends in higher-education curricular programs that it believes to be pertinent to Delaware's present and future circumstances:

Liberal Arts. As society continues to develop new technology and new organizations and structures for living and working, tomorrow's citizen will be called upon to adapt and re-adapt to the world around him. In our increasingly service-oriented economy, more emphasis will be placed on problem solving, communication, interpersonal relationships, and travel. Students will look to a broad curriculum in the liberal arts — including a systematic program in the humanities, social and natural sciences — to prepare them for their future. Such a program will not be "classical," isolated from the problems of the day, but must be relevant to the changing needs of the outside world. It must be flexible in scope, with opportunity for student involvement with real issues in a context of the best thinking of all civilizations throughout history.

Technical Training. As the frontiers of knowledge expand, there will be a growing need for a corps of technicians who will be able to translate new ideas into practice. Their training should be conducted within the framework of a liberal education so that they may become knowledgeable implementors of change. The future will see a clearer delineation between vocational and technical training: the former as essentially a way of imparting basic skills at the secondary level to meet the needs of local business and heavy industry; the latter as a means of providing advanced specialized instruction, leading to careers that are supportive to the professionally trained in various areas. The vocationally trained are skilled workers, the technically trained semi-professionals. In the future, technical education will be a program of higher education, although the course of study will not require four years, nor should it follow the traditional academic curriculum of present baccalaureate programs.

Health Services. The demand for health services in the United States will increase rapidly as the population grows and particularly as the government becomes more involved in programs such as Medicare. This demand will not only require more trained personnel — doctors, dentists, nurses, medical technologists — but different kinds of training than were needed for our past system of providing medical care. Increased emphasis will be placed on the identification of public health problems and the ready availability of medical services to the population. Federal money will be allocated in greater amounts for the development of institutions of public health that can train people to work in these areas.

Nursing. Neither the nursing profession, higher-education institutions, the hospitals, nor the various government agencies for health have agreed on whether nursing education should be university or hospital based. Since the nation, as well as Delaware, will require a vast increase in the number of nurses in the next decade, the panel recommends that continued emphasis be placed on both hospital-training and university-based programs, and that these programs be planned and carried out with the greatest possible degree of cooperation and coordination.

Home Economics. The current discussions in the field of home economics are concerned with a problem that faces many higher-education programs conceived and carried out in an agrarian economy. Since the population of today is urban, coping with the stresses of a complex society, the panel feels that home economics in the future must place greater emphasis on a sound general education. Courses in the natural and social sciences should form a larger part of the curriculum, with fewer majors in specific occupational areas, more inter-departmental study, more programs designed for the problems of the city, and greater emphasis in extension programs on urban concerns.

Teacher Education. In the future even less distinction will be made between a liberal education and teacher training at the undergraduate level. More course work in the humanities and the social and behavioral sciences will be offered, replacing many of the courses of an essentially professional nature that are repetitive in content and often devoid of intellectual challenge. More courses will be offered to acquaint the new teacher with unfamiliar socioeconomic problems which he may have to face. Nationwide trends in student-teaching policies show the increasing use of in-service training, accompanied by a continuing seminar devoted to learning theory and methodology, and carried out in cooperation with the public schools. The best programs in the future will be of longer duration, perhaps five years, with the first two years devoted exclusively to general education.

Agriculture. National trends in agricultural education indicate there is more emphasis on general scientific principles and an increase in various forms of continuing education to meet the growing opportunities for graduates in this field.

Business. Future business education will have more attention given to the social and behavioral sciences to provide for management and business needs, more emphasis on expertise in electronic data processing, greater encouragement of faculty research, and a growing recognition of the increasingly international aspects of American business.

Communications. As the communication industry develops new media and technology, there will be a great demand for training in all aspects of this field.

The Arts. Greater participation in the arts, including the performing arts, has proved to be an effective way to stimulate and educate students of all socioeconomic backgrounds and in all fields of study. As America grows more affluent, programs in the arts will cease to be an expendable luxury and will become a significant part of education at all levels, including continuing education. This is one area in which cooperation with civic and private agencies (museums, theatres, musical organizations) will be especially productive.

Library Science. To a great extent the future of library schools lies in the ability of their educators to keep up with developments in modern library technology. The expanding importance of the library calls for intensive training in the use of data processing and information storage and retrieval equipment. In addition, librarians will need a deeper education in and continuing contact with at least one academic field of knowledge.

Social Work. More extensive training in the underlying social disciplines — political science, psychology, sociology, and anthropology — as well as in methods and organization will be needed if higher education is to provide effective personnel in the expanding field of social work.

Public Administration. Urban problems are now a major concern of state and federal governments. Training for civil-service careers will grow rapidly in the future on the local, state, and national levels. Preparation for all professional categories in this field cannot be offered at any one institution, but through cooperative efforts programs can be developed that will be in line with growing needs.

Recommendations

The panel offers the following recommendations for curriculum programs in Delaware:

1. All programs offered in public higher-education institutions should be coordinated under the expanded University of Delaware. The University's responsibility then will be to:

   a. Carry out the assessment of state-wide curricular needs and the development of programs to meet them.

   b. Keep well informed about current and future national trends in higher-education curriculums.

   c. Increase curricular programs to train students in sufficient numbers to meet the state's responsibilities locally and nationally.

   d. Encourage cooperative efforts in curriculum planning and development within and across state borders between public and private institutions.

2. The University should form a joint committee that includes representatives from all levels of higher education in Delaware to establish a clear set of objectives for each campus of the expanded University. At the Newark campus the University should concentrate on upper-level and graduate programs, with the emphasis in the freshman and sophomore years on excellence in general education.

3. One of the first curricular concerns of the expanded University should be a comparative study of the quality and number of courses offered at the Newark and Dover campuses. Every effort should be made — including re-allocation of state funds, equalization of faculty salary scales, flexible scheduling of students and faculty, administrative reorganization, and implementation of state and university television and library resources — to prevent the needless and expensive duplications that exist (such as in the present agricultural and home-economics programs) and assure that the quality of instruction and availability of facilities are of the highest level appropriate to the program offered.

4. Technical education in Delaware should be clearly established as a part of higher education. An assessment of manpower needs, analysis of the programs offered, and plans for proposed future developments should all be carried out within the expanded community of the

University. Thus technical education will benefit from the variety of experiences and resources of higher education in the state, and students will be able to move freely as they develop their career plans.

5. The general studies program currently offered only at Georgetown should be extended through existing channels to all who desire it through University extension programs, educational television, and on-campus day and evening classes. Higher-education resources should be employed in cooperation with the State Department of Public Instruction to make this program as effective as possible in reaching and preparing those who wish to pursue higher education but lack the necessary qualifications. During the next five years a re-evaluation should be made to determine whether the responsibility for this program can be transferred from the University to local school agencies.

6. Teacher education at the University should be planned and carried out within the context of national trends and developments in this field (see the chapter, "Meeting the Shortage in Teacher Education," for specific recommendations).

7. The University should establish through programs at all levels its commitment to work with the urban problems of Delaware and the nation (for specific recommendations see the chapter, "Toward an Urban University").

8. The expanded University should investigate the feasibility of offering interdepartmental programs in area studies, building upon existing University strengths, developing those areas (such as modern languages) that are appropriate; and it should establish strong cooperative arrangements with regional universities and colleges, existing centers for international studies, and other appropriate public and private agencies.

9. The University should continue to use private as well as public resources to develop and expand its doctoral programs in chemistry and biology. Efforts should be made to increase advanced research in these areas at the Newark campus.

10. The University should encourage superior work leading to doctoral degrees in the social sciences. This development should take place under the direction of a Social Science Research Council, which should include representatives from the colleges of economics, education, psychology, sociology, and the Division of Urban Affairs, with leadership coming from the interdisciplinary Division of Urban Affairs.

11. The Division of Urban Affairs should be upgraded academically with specific appointments and curriculum expansion made in consultation with the Social Science Research Council. The University should consider establishing this department at its Wilmington campus.

12. The University should strengthen the School of Business and Economics by postponing entrance until the junior year, and requiring that the first two years be spent in the College of Arts and Sciences. A department of economics in the College of Arts and Sciences should be established for broad theoretical courses, leaving applied economics to the School of Business and Economics.

13. Through close cooperation with the Wilmington Medical Center and other appropriate public and private agencies, the expanded University should move to establish a center for training in the health services, including two-year, four-year, and graduate programs in subprofessional and professional areas of auxiliary training. The emphasis should be on public health training, assessing public health problems, and bringing needed medical services to the community. Work of this kind would be preparatory to the development of a complete medical facility in Delaware for the future, and meanwhile it would contribute to providing technicians for health service and the medical field. While these programs develop, there should be a continuing effort to establish cooperative arrangements with appropriate agencies and institutions.

The panel believes that the proposed University system can offer education programs of the highest quality throughout Delaware at the most reasonable cost to the taxpayers. When state-wide facilities are established, outstanding opportunities will occur to develop programs as needed, with transfer opportunities made available for those who wish to start their education near home and continue it later at a campus elsewhere in Delaware or in another state. Flexibility and adaptability of the programs are the most important features of the suggested arrangement.

The Need for Interinstitutional Cooperation

The urgent need for greater cooperation between institutions is evident to everyone in higher education today. Rising enrollment (90 percent between 1960 and 1970), rising costs (170 percent during the same period), a shortage of qualified teachers, and the expansion of knowledge in all directions are some of the causes driving college administrators to battle the obstacles of separatism, chauvinism, alumni pressures, and the endemic resistance to change that stand in the way of cooperative efforts.

Our consultants found evidence that there is some degree of cooperation in Delaware's higher education in the following instances:

1. The University has an informal arrangement with the University of Pennsylvania whereby Delaware students may take courses in the Chinese language at Pennsylvania.

2. The University Teaching Resources Center works to a limited extent with the State Educational Television Network.

3. There is some cooperation between the agriculture school at the University and other land-grant colleges in the region, but almost none with Delaware State College.

4. The Arts and Sciences College at the University has a number of federal government projects in which it cooperates with other institutions: under a Title I grant it is the sponsoring institution to assist Washington College in Chestertown, Maryland, in the fields of sociology, art, psychology, and marine biology.

5. The University has a contractual arrangement with the Technical and Community College in the college parallel program.

6. An ambitious program is under way in which the University cooperates with the Jefferson Medical College in Philadelphia to provide medical education for Delaware students.

7. The University is linked with the libraries of the Eleutherian Mills-Hagley Foundation, Winterthur Museum, the Historical Society of Delaware, the Wilmington Art Center, the Wilmington Institute Free Library and the State Archives. The University is exploring the pos-

sibilities of interstate library cooperation and will also serve as the center for the Delaware Rapid Inter-Library Loan Project to link state libraries by telephone and teletype.

An agency through which greater interstate cooperation may be achieved is the Higher Educational Aid Advisory Commission. In Academy interviews with members of equivalent state agencies in Pennsylania, New Jersey, and Maryland, considerable interest was exhibited in meeting to discuss problems common to the institutions and the region.

In addition to this list of cooperative ventures, there are many other, untried ways in which increased cooperation could help to solve some of the problems of higher education in Delaware.

The panel has listed some of the obstacles that may slow greater cooperative effort:

1. The history of higher education in the state — particularly the "private" aspect of the University and the "segregated" aspect of the State College — which has mitigated against cooperation.

2. The attitude at the University that present arrangements are for the most part satisfactory.

3. The absence of any institution or agency that could develop a state-wide plan for higher education with provisions for greater cooperation.

4. The absence of formal channels of communication between higher-education institutions and other organizations in the community, such as in industry and business.

There are many advantages also to be gained from cooperation between institutions inside and outside the state. Even under the statewide University system that the panel recommends for Delaware, the public institutions can never hope to offer all of the wide range of services and programs that are being demanded in constantly increasing numbers. Delaware's location near so many other centers of learning makes any attempt on its part to be totally self-sufficient educationally through the University shortsighted and wasteful. The panel feels that the following advantages are to be gained from greater interstate cooperation:

> A small state can overcome the drawbacks of provincialism and insulation by actively seeking viable relationships with colleges and universities in other states.
>
> Many of the problems and concerns of Delaware are also the problems of the region and are not limited by political boundaries.

Cooperative arrangements between schools in the region provide more realistic organizational structures within which to consider problems endemic to the general area.

A regional structure of cooperative arrangements would provide a regional base from which to seek financial support for projects.

Educational resources unique to Delaware and to other states can be made available on a reciprocal basis and thus lead to equitable distribution of all facilities.

Interinstitutional cooperation is proliferating rapidly in universities throughout the nation, essentially in the financial and managerial areas, but it is increasingly appearing in academic arrangements. The projects and programs undertaken by the institutions in more than 1,200 consortiums for interinstitutional cooperation vary widely from administrative and organizational interdependency to the pooling of resources in order to work on one specific problem for a defined period of time. Examples of cooperative efforts in higher education today include the following:

Educational Technology. Harvard and M.I.T. have a long history of cooperation. The latest chapter is the establishment by the two institutions of the University Information Technology Corporation, which will study the methods of applying developing technology and tools to educational uses. These include (a) the use of closed-circuit television over which Harvard and M.I.T. lectures can be transmitted from one to the other institution, (b) sharing computer facilities so that researchers and students at both institutions can use a central facility, (c) transfer of information between the libraries of the two institutions via computers and television, and (d) research and experiments in teaching with computers, film, and television.

Student Exchange. This is a rapidly growing cooperative venture. One of the best examples is in Massachusetts, where a student of Amherst, Mount Holyoke, Smith, or the University of Massachusetts may take a course at a college other than his own under certain circumstances. No extra tuition is charged, and free transportation is provided. A program of study can thus be enriched in a way that would be impossible if the student had to remain in the necessarily limited programs of any one of these four institutions.

Library Systems. Vanderbilt University, Scarrit College for Christian Workers, and the George Peabody College for Teachers pioneered a joint university library system in Nashville, Tennessee, in 1936 when they created the Board of Library Trustees. Under this legal entity, which owns the books and manages the records from the libraries of all three institutions, one of the strongest research libraries in the South has been developed. Library services are provided to students and faculties that would have been impossible without this cooperative venture, at a great saving to those institutions.

Facilities. The Harrisburg College Center provides a location for study opportunities in this Pennsylvania metropolitan area as well as laboratories and courses where business and industry can arrange for research and development and employee-training programs. It was formed in 1958 as a cooperative venture among Elizabethtown and Lebanon Valley colleges, Temple University, Pennsylvania State University, the University of Pennsylania, and the leading community members of the Harrisburg area. The center provides the faculty, and sponsors credits for students who have been accepted by one of the institutions but who prefer to study in the Harrisburg metropolitan area, which previously had no facility for higher education.

Graduate Programs. One of the many joint activities conducted by the eleven universities under the Committee on Institutional Cooperation is the Traveling Scholar Program, which by 1967 had enabled 450 graduate students in the Midwest to cross state and institutional lines for short-term work in highly specialized areas at neighboring campuses. These students are able to cut through educational red tape and take advantage of resources not available at their own universities, whether they are a particular course offering, a unique library collection, a renowned professor, or an outstanding research or laboratory facility. Fees are paid to and academic credit is received from the home university; study opportunities occur at all eleven universities.

Regional Cooperation. One of the most forward-thinking groups is the Western Interstate Commission on Higher Education (WICHE), consisting of thirteen western states that cooperate to provide exceptional and efficient educational facilities and programs to meet their needs. A list of WICHE's current programs reveals the extent to which it has carried out its purpose:

> Medical Education Program in States Without Medical Schools. The program conducts a symposium in sparsely settled states to help the medical, political, and educational leaders in those states set up arrangements for medical education that are the most appropriate for their unique circumstances.
>
> Undergraduate Education for the Helping Services. This project provides opportunities for the sharing of information and resources for the faculty to develop undergraduate programs in community

services, and to stimulate the improvement and expansion of summer work-study programs. It also provides for an annual meeting so that the faculty can share in the evaluation and discussion of program innovations.

Continuing Education Program for Nurses. Practicing nurses have the opportunity under this program to improve their leadership skills in teaching, supervision, and administration.

Special Higher Education Programs. These programs assist the western states and their institutions to find solutions to common problems in the field of general higher education. They provide, through regional cooperation, the finest resources in talent, programs, and publications.

Institute for College and University Self-Study. This institute offers a program to disseminate significant research findings to college administrators, faculty members, and public officials concerned with the broad and fundamental issues of higher education in the West. It also stimulates further study in underdeveloped areas of research on higher education.

The new state-wide University recommended for Delaware would be a truly significant and comprehensive public university complex on the eastern seaboard. A university of this increased stature should examine all possible areas of cooperation with private institutions in the state, and also with other universities in the region — the University of Pennsylvania; Temple University; Rutgers, The State University; George Washington University; Catholic University; Georgetown University; and American University. Just as Harvard and M.I.T. have discovered many ways in which cooperation works to their mutual advantage, so the University of Delaware could profit highly by increased contacts with other higher-education institutions. In initiating cooperative programs, the University should:

Keep lines of communication open between the planning groups of the institutions involved.

Make sure that the roles, responsibilities, and commitments of each institution are clear from the outset.

Provide for continual evaluation of programs as they are developed.

Recommendations

The panel makes the following recommendations for interinstitutional cooperation in Delaware:

1. The biggest step toward cooperation between public higher-education institutions in Delaware would be the establishment of the recommended state-wide University. The proposed state-wide University should then designate an official or officials to work with both the private Delaware institutions and out-of-state institutions to develop cooperative arrangements wherever possible and desirable.

2. Cooperative arrangements to be considered should include:

   a. Programs in art history and horticulture, for which the University could make available the resources of Winterthur Museum to students from other institutions. Those institutions would, in turn, have facilities of benefit to the University.

   b. Arrangements with the Drexel Institute of Technology to use the resources of its excellent library school instead of establishing one at the University.

   c. Strengthening the University's research and development programs through cooperation with industry, other higher-education institutions, and research centers such as the University City Science Center in Philadelphia.

   d. Entering into cooperative arrangements with regional consortiums such as the University Consortium in Washington, D.C.

   e. Cooperative efforts involving the major regional agricultural programs, with each institution contributing from its areas of strength.

3. Of special interest to the University would be the development of its facilities for television, computer services, and other educational technologies through greater cooperation with the Delaware Educational Television Network and regional educational television stations. A first step should be the establishment of a direct link between the TV facilities at the University and those at the state television station in Dover. Programming for all levels of education would be improved by a greater integration of the outstanding state production facilities with the University's strengths and interest in the educational process: learning psychology, teaching techniques, and sophisticated program evaluation.

4. Proposed cooperative efforts should be further encouraged between the expanded University and private higher-education institutions in such areas as educational television, computer services (educational and administrative), and library cataloguing facilities.

5. The University should continue its outstanding program of training doctors in cooperation with Jefferson Medical College and the Wilmington Medical Center, and should proceed with plans for other kinds of health training in cooperation with appropriate agencies, as outlined in the chapter, "Updating Curriculum Programs."

These recommendations suggest the many possibilities for cooperation that now exist and that can be actively explored and implemented by officials of the University. Were the possibility of cooperation to be actively entertained by the expanded University, many more projects and proposals would soon present themselves. Such arrangements are of paramount importance to the development of high-quality programs that the community has a right to expect from its publicly supported higher-education institutions.

Toward an Urban University

The institutions of higher education are acutely aware that society's major concerns of today and tomorrow will be increasingly urban. Universities that seek a role of academic leadership are involving themselves more and more with the problems and the opportunities of city life. William Birenbaum described the situation when he wrote recently in *Campus 1980: The Shape of the Future in American Higher Education*:*

> Great cities will naturally inspire great universities, and it will become increasingly difficult for institutions to be great apart from the urban environment. Most of the country's outstanding universities are urban-based. Those which aren't are reaching out for the nearest city as rapidly as they can.

For the University of Delaware the message is especially pertinent. The pastoral setting that Americans once believed was desirable for higher education is in many ways anachronistic today. Ignoring the city bespeaks not only a retreat from the most urgent problems of modern life, but also closes the door on the source of the best that modern society has to offer.

It is the opinion of the panel that in order to compete for the best talents and facilities in government, industry, and the arts, the future university will of necessity be forced to go beyond the present buildings and pieces of property which constitute the present campus. The future campus will utilize a variety of urban resources. Universities will use the facilities of museums in their art departments; industrial research centers will be closely related to advanced university scientific studies; government commissions and research staffs will be resources for future departments of political science. In short, the city itself will become a part of the campus of the future. Just as civic activities will be involved in education, learning will be involved with the daily life of all the people.

The city of Wilmington is a natural resource for higher education. As a rapidly growing urban center with extensive philanthropic interests, Wilmington has cultural and industrial resources far greater than its size would indicate. It stands ready today to make a significant contribution to the education of all Delawareans. A greater involvement by the University of Delaware in Wilmington will mean not only that a prestigious institution of higher learning would bring its resources to bear on solving pressing urban problems, but in doing so would enrich itself by encouraging the interaction of men, ideas, and resources between the University and the city. The panel believes this is a major way in which the University can fulfill its responsibilities as the sole university in the state.

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* Edited by Alvin C. Eurich. New York: Delacorte Press, 1968.

The authority and prestige that the University has gained in other areas of Delaware will serve it well in its expansion into urban life. The projects in which it has so far involved itself argue well for the success of future programs. The University's Division of Urban Affairs is to be commended for the quality and the extent of the research it has conducted in Wilmington and throughout the state. Its surveys and projections have been invaluable to many state commissions and agencies. The cooperative efforts being undertaken by the University and the Wilmington Medical Center exemplify what can be done when civic and educational institutions combine talent and resources to solve a problem important to both.

In addition, the urban campus being developed for technical and community college programs will bring higher education directly into the city. The private institutions established in the city and its environs are providing Wilmington with cultural stimulus and educational opportunities and in turn are themselves benefiting from their proximity to an urban center.

However, although recent developments in transportation and communication have brought Wilmington and Newark closer together, they remain psychologically separate. The panel believes that the isolation necessary to many activities of a university must be balanced by involvement — physically and intellectually — with the major concerns of the community.

Delaware needs programs to train people to work intelligently with its urban problems in order to develop, renew, manage, and maintain its communities. In some instances these programs should be organized in the Urban Affairs Division at the University; others may remain in their traditional departments, but make greater use of urban resources through the division. The panel believes that progams such as the following will be of tremendous importance to Delaware while at the same time providing opportunities for the young person eager to improve the world he lives in:

General Public Administration. Training in the processes and techniques of administrative management with substantive learning in urban affairs will prepare the planners, managers, program directors, and budget directors needed by Delaware in all phases of urban government. These programs should be interdisciplinary, organized in centers that provide an extensive commitment of resources to prepare personnel to enter the mainstream of national, state, and local administrative responsibilities.

Urban Administration. There is a need in Delaware for courses in urban growth, development, policies, planning, services, community organization, and other areas of urban life to lead to the preparation of city administrators.

City and Regional Planning. The city planner must be acquainted with such diverse subjects as physical design, public administration, computer sciences, urban transportation, graphics and design, regional economic theory, land-use law, community organization, and public welfare policy. Although city-planning offices employ a variety of specialists, the graduates of accredited schools of planning carry the major responsibilities.

Urban Development and Renewal. In Delaware there is a need for personnel with broad training in city administration and specialized knowledge of replanning and rebuilding cities, in relation to the state's special circumstances.

Housing Administration. Although no specific programs currently exist in this field, the increase of federal interest in providing better housing, especially for low-income families, will demand specialized training in this area in the future.

Community Action. Federal programs dealing with urban poverty, unemployment, delinquency, school dropouts, substandard housing, and related community ills will require the establishment of community-action agencies to plan, organize, and coordinate remedial measures and services. Students in this field should prepare themselves through the study of the dynamics of individual and group behavior, urban problems, and methods of planning, managing, coordinating, and interpreting community-action programs.

Industrial-Economic Development. Since 1950 a great variety of public and voluntary organizations have been established in urban centers to foster local economic growth. To staff these industrial-development agencies and business-corporation offices in Delaware and elsewhere, persons are needed with training in urban problems, economic research, business finance, community development, industrial planning, and the formulation and negotiation of projects and policies. Courses for a program in industrial-economic development should include: urban and regional economics, urban land economics, business economics and finance, public finance, business administration, urban planning and research, community development and organization, municipal government, and metropolitan problems.

Community Recreation and Park Administration. Delaware has already recognized that there is a need for increased attention to the adequacy of parks and other public recreational facilities. Personnel in this field need exposure to all phases of administration, and to the various areas of park administration such as landscape architecture, horticulture, recreation, and design and construction. Delaware's extensive private museums and gardens as well as the University's courses provide a strong base from which this program can develop..

Public Works Engineering and Administration. As the public works program in Delaware becomes larger and more complex, training for this field must grow with it. Proficiency in civil engineering and public works administration must be accompanied by courses taken in all phases of urban problems.

Urban Traffic and Transportation. There are two major parts to this program: one with primary emphasis on the technical aspects of traffic, transportation, and highway engineering; the other integrating interdisciplinary courses from city and regional planning departments with a broader engineering curriculum of administration practices. Both will be of increasing importance in Delaware's future development.

Social Service and Welfare Administration. As the number of services for the welfare of the urban population in Delaware grows, there will be an increasing demand for persons in this field with a wide background of training in public administration, urban problems, community organization, and the traditional courses in social work.

Administration of Law, Safety, and Justice. As the difficulties of maintaining order in an urban society become more complex, existing programs in law, police administration and training, and public safety must become increasingly interdisciplinary. Delaware must train its enforcers of order to understand urban problems and to deal with them effectively and constructively.

Public Health. The shift in emphasis in public health is to preventive medicine, sanitation, prevention of air and water pollution, medical care in the home, mental health, and the problems of the chronically ill and indigent. Delaware's programs in public health in the future should be more closely tied in with training in city administration, urban problems, and city planning.

Hospital Administration. As Delaware's population becomes more and more urban-centered, hospital administrators are involved to a greater degree with urban local, state, and federal agencies in dealing with the cities' health problems. Delaware is already working in this direction.

Education Planning and Administration. Education, along with all sectors of public and private life, is feeling the pressures of urban life. In the future all programs in teacher education, administration, and especially educational planning will have to include course work and intern experience in the problems of the urban schools.

Research and Teaching in Urban Affairs. In addition to university research programs, private and public consulting agencies and municipal research bureaus are in need of highly trained professional persons to provide the best technical assistance to urban authorities. Training needed by such personnel will include courses in research, analysis, teaching, and writing, with substantive course work in urban problems.

Recommendations

The panel offers the following steps by which the University can increase its commitment to and involvement with Delaware's urban problems:

1. The New Castle campus now being developed in the Wilmington area for technical and community college programs might provide part of the basis for the University's expansion into the urban area of Wilmington. Quite possibly at least one other campus will be needed in the Wilmington area. The expanded University should explore all appropriate methods by which residents of the Greater Wilmington Metropolitan Area may be provided with a variety of educational experiences, including full-time, baccalaureate, and selected post-baccalaureate programs.

2. The University should establish at its Wilmington campus an office responsible for encouraging cooperation between the University and all appropriate civic agencies and organizations that could contribute to the University's programs in higher education.

3. As the Wilmington campus of the University expands, officials should give consideration to transferring certain of their departments and divisions to this campus, making it the headquarters of those activities that are appropriately conducted in an urban setting.

4. A cohesive and comprehensive program in urban studies through the doctoral level should be established at the University, leading

eventually to a major division of the expanded University, possibly a college to include studies in public health (see "Updating Curriculum Programs").

5. The School of Education should make a special effort to work more closely with Wilmington city schools than it has in the past, including student-teacher placement, courses for teacher aides, in-service training for experienced teachers, special programs for teaching the urban child, studies in the use and preparation of materials presented through the new educational technologies, and other programs especially related to the problems of education in an urban setting.

6. The University should conduct research in the problems of the poor in the overrun cities of the East Coast. This is an area that needs intensive examination and study.

7. Of mutual benefit to the state and the expanded University would be the establishment of a formal program of University assistance to state agencies responsible for alleviating urban problems. Such a program would encourage contractual relationships, internships for graduate students in appropriate state agencies, *ad hoc* consulting by members of the University faculty, and state-sponsored and supported research at the University in problems of special concern to Delaware. Among the agencies that could benefit from University assistance are the Department of Housing, the Department of Transportation, the State Highway Department, the Development Department, and the Water and Air Resources Commission.

Technical Education

Technical education in Delaware is expanding rapidly at both the secondary and post-secondary levels, an expansion that many feel has long been overdue. The establishment of the Sussex County vocational-technical high school in 1962, followed by a similar center in Kent County, and one at New Castle to be opened in the fall 1969, are providing opportunities for Delaware youth to receive training that can lead to their placement in the fast-developing industrial system of the state. At the post-secondary level the southern branch of the Delaware Technical and Community College, which opened in 1967, and the temporary campus in Wilmington, opened in the fall of 1968, will help to train the technologists and subprofessionals for whom demand is accelerating in Delaware's industry, business, education, government, its health fields, and other areas.

Although it is too early to make a state-wide evaluation of how well these developing programs are meeting Delaware's manpower needs, it should be noted that vocational and technical education is a new feature in Delaware and therefore need not be encumbered by outdated attitudes that so often mitigate against imaginative and innovative educational programming. The challenge to Delaware's vocational and technical educators is to grasp this opportunity to make comprehensive and flexible plans that will provide the most efficient use of technical training resources to meet the state's needs.

Delaware, like other states, is trying to develop an educational plan that deals realistically with the fact that 70 to 80 percent of American youth do not complete baccalaureate programs; that a large percentage of those who fail to earn baccalaureate degrees (and many who succeed) are not suitably prepared for employment in a world that demands rising levels of technical skills; and that as a result high unemployment rates exist in certain areas of the population, both in the sparsely settled rural regions and in the ghettos of major cities.

The problem of unemployability has many facets — social, economic, and political, as well as educational. The educational problem is to provide a program of learning opportunities and experiences that are basic and relevant to the occupational career needs of young people who step off the educational ladder between the tenth and fourteenth years of the school program. For the growing number of students for whom the traditional academic education is not desirable but yet want some kind of higher education, new programs are needed. Too often today the attributes and skills most valued by working society are not the ones that a traditional educational system rewards, and in many cases are exactly those which a traditional educational system seeks to extinguish.

Technical education should be planned with certain facts of the changing world in mind:

- The increase in complexity of all kinds of occupations.
- The importance of automation to personnel, jobs, production.
- The disappearance of the common unskilled laborer.
- The growing need of industry and business for a newly defined category — subprofessional manpower.
- The shortage of workers in professional, semiprofessional, and technical categories.
- The rise in numbers and importance of service industries with their special training requirements.

It is the panel's belief that at the high-school level vocational instruction should exist within the framework of the general high-school curriculum, and that academic subjects be presented without lowering academic standards but in a way that is relevant to the vocational student. The post-secondary technical programs should be a new educational experience shaped to the needs of those who want to acquire specific skills, and not merely two additional years of schooling patterned after high school or junior college. The panel suggests programs are needed that will:

- De-emphasize credits, degrees, or diplomas as entrance requirements or as rewards, and instead measure performance by the successful placement of students.
- Be scheduled in many time modules, not just the standard academic divisions of the school year, and permit students to enter and re-enter as their needs dictate.
- Provide extensive opportunities for work-study arrangements.
- Be responsive to the help-wanted needs of the community and state and are closely related to manpower projections.
- Encourage employment flexibility by training persons for the entire spectrum of skills within one occupation.

- Select teachers on the basis of their established competence in their fields, with teaching capability demonstrated in an internship situation.

- Assist in the development of laboratory situations that will prepare future vocational-technical master teachers.

The panel found the following situations in vocational and technical education in Delaware:

1. The facilities in the two existing high-school county centers are in many respects more sophisticated than those at the two branches of the Technical and Community College.

2. At present the University possesses resources for technical and subprofessional training in many fields that could be handled competently by a two-year institution at some future time.

3. Private institutions in Delaware are offering technical and subtechnical programs for which they see a demand and which do not require expensive equipment — business, office skills, two-year nursing programs, food service, and police training.

4. Delaware Technical and Community College opened its first branch in Georgetown last year; the northern branch was opened in its temporary headquarters in September, 1968. The Georgetown branch, the first advent of higher education to Sussex County, offers three programs: (1) technical, (2) general studies for students not qualified for either a technical or academic program, and (3) a college-transfer curriculum. The latter is administered on a contract basis by the University with the same admission requirements as for University freshmen.

5. The teacher shortage, prevailing in all Delaware education, is especially acute in the field of vocational and technical instruction, owing in part to the lack of teacher-education programs in this field. Although this problem is widely recognized in the state, there is little evidence to suggest that any significant programs are being planned to alleviate the situation.

6. There is a growing overlap in jurisdiction between various levels and varieties of vocational and technical training, due in part to (a) the independent development of programs at all levels in the state, (b) the unequal distribution of technical facilities, and (c) the lack of any kind of comprehensive state-wide planning.

The panel was impressed with the enthusiasm generated throughout the state for the development of two-year technical and terminal programs. The major weaknesses are the absence of a plan for coordinating the efforts of the several agencies that operate different parts of the program, and a deficiency in the plans for preparing the leadership and instructional staffs for the programs visualized.

The optimum use of specialized instruction facilities owned by the several institutions will need to be determined. It is doubtful that lay boards, whose prime interests lie in the objectives and programs of single institutions, will be able to do the orderly state-wide planning that is needed — especially when allocation of functions is unclear, and the areas of educational programming overlap.

There is a nationwide problem in determining where technical education should fit in the total educational structure. A resolution of this dilemma is essential to the success of technical education in the future. The farsighted view holds that technical education must be established as a part of higher education. Operating as an integral part of higher education, technical education will be better able to offer its students a wider choice of study than would be the case if it were in a discrete institution. Establishing technical education as part of higher education will also help to define its role, and will help prevent technical programs from overlapping areas better left to the secondary level. Finally, as technology continues to develop and become more complex, as those on the cutting edge of knowledge continue to forge ahead, there will be greater need to train technicians so that they will be able to execute the inventions and theories of scientists and other professionals. The close relationship necessary can be realized only if technical education is a part of higher education.

Recommendations

The panel makes the following recommendations for future vocational and technical education in Delaware:

1. Public post-secondary technical education should be made a responsibility of the expanded University of Delaware. The decisions for present and future course offerings, expansion, or other developments should be made within the context of all of higher education in Delaware (see the recommendations in the chapter, "Updating Curriculum Programs").

2. Every effort should be made to provide for the development of technical education as a part of higher education and as its own special requirements dictate; but it should not be burdened with academic requirements and procedures inappropriate and unnecessary to its function.

3. In the expanded University system a program for training technical educators, counselors, and administrators should be begun, to consist of the following:

> Education of teachers, administrators, and counselors for vocational high schools and post-secondary programs.
>
> Curriculum development for vocational high schools and post-secondary technical programs.

4. In the comprehensive high-school curriculum, every effort should be made to provide a vocational program. At the post-secondary level, technical programs should be clearly related to the more specialized needs of students and society.

The Growing Demand for Continuing Education

Continuing education is one solution for today's citizens who find they need more learning to qualify for new or changing jobs, and who have more leisure to pursue studies of their own interest. Continuing-education programs have been increasing in number and variety throughout the country. The panel predicts that instruction of this type will be even more popular in the future; this prediction is based in part on the following projections:

> The percentage of the growing population with "high-school plus" education will increase.
>
> People can look forward to more leisure time because of earlier retirements and shorter working hours.
>
> There will be greater demand for new professional and subprofessional skills.
>
> Changing technology will require a great increase in retraining of many workers.
>
> The number and variety of service occupations will continue to grow faster than production jobs.
>
> The disparity between the knowledge of the specialist and that of the layman will increase more rapidly.

For these and various other reasons, the continuing-education departments, especially in publicly supported institutions, must develop more programs if these institutions are to maintain the tradition of community service which has made them unique among colleges and universities elsewhere in the world. In Delaware this tradition of public service has been carried on for the most part by the University's Extension Division. In addition to more than 520 credit courses, the University offers many noncredit courses and sponsors seminars in a variety of subjects at seventeen centers and on television.

The Extension Division is to be commended for its efforts in planning continuing-education courses for women, for its plans to add to its community service courses, its increased efforts in the field of guidance and counseling, its willingness to cooperate with Delaware industry, and its plans to instigate more field research to pinpoint needs for new course offerings.

Since the University's extension program is the major effort of this kind in the state, the panel offers the following observations concerning its organization and operation:

> The Extension Division at present consists of three parts: the academic program (credit courses), continuing education (noncredit courses), and conferences (seminars and meetings lasting only a few days).
>
> The University's flexibility in accommodating students of varying backgrounds and abilities in the academic programs of the Extension Division augurs well for its ability to deal in the future with such students, full and part time, whom it will serve as an expanded University.
>
> The financial responsibility of the Extension Division to the University sets it apart from other University programs in that it must be self-supporting. The college deans are responsible for the evening courses taught as part of their respective faculties' regular teaching loads, whereas the extension director is responsible for evening courses taught as faculty overloads. This arrangement, if continued in the future, will become increasingly difficult and inappropriate, especially in view of the need for greater coordination throughout the state.
>
> Whereas in recent years the academic program has accounted for 95 percent of the enrollment at the Extension Division, lately the growth in other programs has increased tremendously and this growth can be expected to continue into the future. The 1966-67 enrollment in noncredit courses and programs increased 23 percent over 1965-66 and 154 percent over 1964-65. As noted in the chapter on enrollment, this growth can be expected in the future as programs relevant to a broader range of interests continue to be developed.
>
> Approximately 70 percent of the courses offered by the Extension Division are upper-class or graduate courses.
>
> Some conference programs are offered in the vocational and technical areas.
>
> There is some concern among the faculty about appropriate remuneration for teaching extension courses that are not part of regular teaching loads.

Communication channels between the director of the Extension Division and the top administrative level of the University probably should be streamlined.

Delaware State College has a very limited extension program. The Technical and Community College has undertaken an extension and continuing-education program that can be expected to expand greatly in the future, especially as campuses are developed in the more populated areas of the state.

The private institutions have programs of continuing and adult education, but are limited in their offerings by their inability to compete with the low tuition charges of the University. Their ventures into this field have been successful in many cases, and they are currently seeking ways to expand these programs, for they are both a source of revenue to the institutions and a service to the community. The programs at these institutions, as at the University, are presented without any state-wide consultation concerning the kind of course offered or its location.

The programs in extension and continuing education at the University of Delaware were originally based on the philosophy of land-grant colleges, which sought to extend educational opportunities of a primarily vocational nature to people living in an agricultural society with little access to centers of learning. Higher education is attempting to continue this tradition of community service in today's urban and industrial society. By the end of the next decade, adult continuing and extension education will have evolved from a peripheral, low-status, expendable activity restricted by the requirement that it be self-supporting, into an integral, subsidized part of university life.

The panel suggests that the best programs of continuing education in the future will seek to provide the following:

- A curriculum based on adult needs, and not on the traditional academic divisions of formal higher education.

- A campus in an urban setting, close to cultural and industrial centers, constructed for the needs of an adult community.

- A faculty policy that will ensure the best possible personnel for continuing education with full participation and identification with the university faculty.

- Clear-cut administrative responsibility for planning and conducting the program without the stipulation that it be self-supporting.

- Continuing response to community needs through the community's participation in the planning and execution of programs.

- Imaginative and effective use of new educational techniques and tools.

- Extensive use of home study, special examinations, programmed materials, and unique scheduling arrangements that allow for the varied needs and schedules of adults.

In the future the University will need to extend and develop its programs to meet developing community needs. Examples of programs at other institutions suggest possible future directions for Delaware:

> Special degree programs for adults through a combination of classroom study, independent study, interdisciplinary seminars, and scholarly projects. (University of Oklahoma, Syracuse University, and Goddard College)
>
> Courses for workers that emphasize theory and broad concepts rather than limited occupational training.
>
> Seminars in cooperation with professional associations to keep professionals abreast of new findings in their fields — with the institutions providing the appropriate faculty to give theoretical background. (Michigan State, University of Georgia)
>
> An active demonstration and field program in the areas of industry, science, and social service in an urban setting, similar in intent to the agriculturally oriented programs of the nineteenth and twentieth centuries.
>
> Centralization of the administration of existing community services to coordinate their efforts and to train appropriate leaders. Activities in this area that would be appropriate to Delaware might include:
>
> 1. A special task force composed of representatives from the Wilmington Medical Center, the University's College of Nursing, and social-work and community agencies to design a broad curriculum for personal and family development, and also to determine the extent to which these needs are being met in Delaware.
> 2. The establishment of a comprehensive family counseling service in connection with the psychology department of the University.
> 3. Programs for recruiting and training adults for subprofessional and volunteer jobs in family and social welfare and in education.

A field seminar to foster an understanding of the metropolitan area and its government, with extensive use of the community, its resources and activities.

A continuing public affairs institute to discuss crucial government issues, transmitted on the educational television network. Background information would be presented by the faculty, with politicians, citizens, and officials providing special points of view. (Metroplex Assembly Program, Washington University, St. Louis, Missouri)

Continuing education for officials and employees of the city, state, and federal government arranged through appropriate agencies in cooperation with the Continuing Education College. (University of Wisconsin)

Programs in international studies, including field seminars at the United Nations and various embassies, using local and national educational television networks where possible.

Programs to develop an appreciation of the arts through museum visits, seminars, and workshops, with participation by visiting artists, writers, actors, and playwrights. (Chicago Art Institute; Sarah Lawrence College, Bronxville, New York)

In addition, in the future the University might become involved in a variety of community services related to education:

1. Act as a clearinghouse for information on the existing and potential resources for continuing education of all kinds, and publish an annual directory of such information.

2. Provide a counseling service for individuals and groups interested in continuing education.

3. Encourage independent study by making available the counsel of the appropriate faculty members at the University or other institutions.

4. Conduct research in adult learning and teaching and in other areas directly related to continuing education.

5. Evaluate periodically all continuing-education programs.

6. Stimulate research in the community through the University's extensive relationships with civic leaders, educators, and citizens, and by involving the proper faculty and research assistance to solve the community's crucial problems.

Two new faculty staffing procedures particularly suited to Delaware would enable the University to attract a sufficient number of qualified faculty to this program:

Adjunct Faculty: Because of its proximity to a large business, industrial, and research and development complex, the University could enlist some of the nation's outstanding leaders in all these areas on a lend-lease basis to teach extension and continuing-education courses. Such faculty members should be accorded full participation in the University's faculty privileges.

To encourage participation by educators from the private institutions, joint appointments might be considered or specific contracts with the private institutions when special work is required.

Faculty Aides: Adults who had been active in the continuing-education program could be employed to assist the community leaders and the regular faculty upon completion of a special training program for this purpose.

Recommendations

As the panel feels that the leadership for continuing education in Delaware must come from the expanded University, it makes the following recommendations:

1. All publicly supported adult and continuing education in Delaware should be made a responsibility of the expanded University, which should form for this purpose a College of Continuing Education with full university status, administered by an official with a rank appropriate to this position.

2. Programs in the College of Continuing Education should be planned and carried out in line with the University's tradition of community service. They should be based on a continuing study of the needs of government, business, industry, education, and other groups in society — for example, the training of women who wish to re-enter the job market, and of minority or disadvantaged groups who need special courses. Programs that help citizens to acquire knowledge, programs that help overcome years of discrimination or inferior education are as much a responsibility of a college of continuing education as are job training and avocational courses.

3. For the financing of the College of Continuing Education, the University should look to public and private sources for support of programs and activities. If programs are justified on the basis of the need for them in the best interests of the people and of the state of

Delaware, funds should be made available even if tuition or other charges will not pay the total cost.

4. The state's needs for continuing education in the future can be met through many means. The University should seek beyond its own personnel and facilities to develop the programs required. Contracts should be arranged with private institutions in the appropriate areas, and civic, industrial, and business groups should be approached as sponsors for the programs.

Meeting the Shortage in Teacher Education

The biggest problem in the field of teacher education in Delaware today is that of numbers: faced with a annual demand for 1,200 new teachers, the State College and the University graduate less than one-third of this number. Many of those who do graduate leave the state or enter fields of employment other than teaching. Last year it was estimated that only 36 percent of the graduates of the University and the State College who were certified to teach accepted positions in Delaware, and most of these went to the better-paying districts in New Castle County. According to the University Placement Office, of the 126 University graduates of the class of 1967 who accepted teaching jobs in Delaware, 110 obtained jobs in New Castle County. Less affluent districts raid those neighboring states where teacher salaries are also low, and are increasingly obliged to hire personnel with emergency certificates. An indication of how serious the shortage is: in 1966-67 eight percent of Delaware's teachers had less than standard certificates; in 1967-68 this figure had risen to fourteen percent.

Delaware's dilemma, however, will not be solved merely by meeting the present shortage. As one of the fastest-growing states in the country Delaware can be expected by 1980 to have 170,000 youngsters five to seventeen years old, a 37 percent increase over 1965. In 1967-68 there were 141,000 five- to seventeen-year-olds and 5,330 teachers, according to the Department of Public Instruction. If the present teacher-student ratio remains the same, a very conservative estimate would indicate a shortage of 6,800 teachers in the next decade. Even if one assumes that educational technology will be widespread, alleviating some of the teacher shortage, national trends project a tremendous expansion of all education programs, more individualization of instruction, greater participation in all programs and a lowering of the entering age. So this figure is a conservative one. Where will the needed teachers come from?

Just as important a question is: does Delaware have enough teachers of the kinds that are needed? The answer in many cases is no, and prospects for improvement in the future are dim:

1. With shortages already indicated in the rapidly expanding field of vocational education, and since neither the State College nor the Uni-

versity offers a program in vocational teacher education, the expectation is that these shortages will continue to become more serious.

2. Rising demands of urban schools and their disadvantaged students call for teachers with special training in certain areas, but there is little evidence that either the University or the State College plans to provide the specialized training.

3. As society today increasingly regards schools as being more than instructional centers, Delaware schools along with those in the rest of the country will be asked to provide guidance and counseling in greater depth and for greater numbers than in the past. Where will the additional counselors come from?

4. Teachers are needed in the field of special education, and as the state takes more responsibility for children with learning difficulties there will be an even greater need for specially trained teachers in the future.

5. The expanding area of service occupations has led to the development of distributive education courses. The qualifications and training for distributive educators are specialized, and although distributive education is expanding, Delaware does not yet have a state-supported teacher-training program in this field.

6. Educational technology is burgeoning and can be expected in the next few years to be an important part of almost all educational programs. Not only will personnel be needed to develop the tools and to prepare the software, but teachers will have to be instructed in the best ways to make use of the new equipment.

The magnitude of the teacher shortage in Delaware and in the rest of the country suggests that merely training more teachers will not solve the problem. People with skills in communications and the ability to work with groups of people are in great demand in the growing service area of our economy. Furthermore, the possession of these skills is in many cases rewarded in other fields by higher salaries than the schools can offer.

People are also discouraged from entering and remaining in the teaching profession by the required training programs, the situation in the schools themselves, and the discontinuity between these two experiences. Encouraging the participation of the people with the range of abilities and training needed in education is going to require the active cooperation of the local schools, the teacher-training institutions, and the state departments of education. The Education Professions Development Act, recently passed by the federal government, seeks to stimulate these partnerships by providing funds for innovative programs to attract and train people in the education professions. Its flexibility and comprehensive provisions were based on the understanding that attracting and training people for the education professions will be successful only if all those responsible work together.

There are four agencies in Delaware concerned with teacher education:

1. *The Department of Public Instruction of the State Board of Education.* The Teacher Education and Professional Standards Division in the Department of Public Instruction is responsible not only for certifying all public-school teachers in Delaware outside of Wilmington but also for the accreditation of all degree-granting institutions, including two-year colleges. It also has the responsibility of approving teacher-education programs offered at the University. On paper it has a great deal of control over this area of higher education, but so far has lacked both the resources and the precedent for greater involvement. There is some indication — for instance, in its participation with Research for Better Schools, Inc., in the Delaware Research Implementation Team in Education program and its support of the Education Professions Development Act — that the Department of Public Instruction would like to move toward a more active role in the encouragement of good teaching.

2. *The Wilmington Board of Education.* In many ways this agency has responsibilities for Wilmington that are similar to those that the State Board of Education through the Department of Public Instruction exercises in the rest of the state. As the only large urban center in Delaware, Wilmington is finding itself caught in the maze of problems common to today's big cities. The Board is to be commended for the extent and depth of its in-service training programs, but cannot be expected to solve the multitude of problems by itself.

3. *Delaware State College.* Being a predominantly Negro college, Delaware State has always contributed a large proportion of its graduates to teaching, since this has been historically one of the few professions open to Negroes. Although the percentage of certified teachers that are graduated can be expected to be consistently high, openings in other fields of employment are attracting larger numbers of graduates — to such areas as business, for example. In recent years improvement has been made in the State College's physical facilities, but previously cited insufficiencies raise the question of program quality. There is an unconfirmed indication that a much larger percentage of State College graduates leave the state than do University graduates — presumably because of the reported higher percentage of out-of-state students at the college and the continuing difficulty Negroes experience in securing

responsible teaching and administrative positions in many Delaware schools.

4. *The University of Delaware.* The University has graduated more than 300 teachers annually in recent years, but this is still only one-fourth of the total number needed in the state. The lack of a doctoral program in education has limited the University's training of needed administrative personnel and its contribution to the over-all quality of the public-school system of the state and the city of Wilmington.

Based on an analysis of its own investigations and the answers to questionnaires sent to secondary-school and college teachers and administrators, the panel's conclusion is that a great deal of confusion exists in the minds of Delaware educators as to who is really responsible for teacher education in the state. The state has designated the Board of Education through its Division of Teacher Education and Professional Standards as the agency responsible for certifying teachers and accrediting teacher-education programs, but has failed to provide sufficient funds and manpower for the agency to be very effective. The University has at its disposal the money, manpower, prestige, and to a certain extent the precedent to assume a leadership role in teacher education, but up to now has, perhaps for good reasons, hesitated to assume this responsibility. Its efforts in this field both as an institution and by individual faculty members have been noteworthy, but have not been formulated in any state-wide planning that would specifically delegate this function to the University.

At the same time there are crisis areas in teacher education that are recognized by almost everyone in Delaware. Frustration over how to bring action to bear on these problems has led to the formation of citizens' groups, such as the United Forces for Education, which seek, among other goals, to publicize the acute Delaware teacher shortage.

The panel believes that its recommendation for the expanded University will help to clarify much of the confusion that now exists concerning the responsibility for educating Delaware's teachers. The necessary reorganization will include the evaluation of a number of existing practices to determine if they are still valid. The enlarged University, with greatly expanded resources and a much broader base of contact with all levels and areas of education in the state, would be expected to assume a much greater role both in assessing needs and providing the best innovative and imaginative programs of teacher education. The following proposals suggest some of the possibilities under the new system:

1. The new University system would have for its Georgetown campus the facilities of the Technical and Community College, which it could use as a center for extending student-teaching opportunities to

schools in the southern part of the state. This center could also be used for the study of special educational problems, and as a center for in-service programs for southern Delaware public-school teachers at all levels, from paraprofessional to advanced-degree candidates.

2. Through the recommended Wilmington branch of the new University system, the University and the city of Wilmington would be able to work together on the problems of providing an education to inner-city students. The schools of Wilmington would then provide educators at the University an opportunity to develop, in cooperation with Wilmington officials, new programs to meet new needs. The Wilmington Board of Education could turn to the University for in-service training programs for its teachers, confident that they were designed to meet identified needs in the Wilmington area.

3. The facilities in Dover could provide a logical extension of the University into the mid-state region, and could serve as a center for student-teacher supervision, in-service training at all levels, becoming a focal point where local schools and the University could cooperate in solving problems of teacher education.

Recommendations

While every state's department of education has unique responsibilities and requirements that dictate special policies for teacher education, in Delaware where the proposed expanded University has such a large and important role to play, the state and the University must work closely together in carrying out the needed expansion and improvement of teacher education. To this end the panel recommends that:

1. The Department of Public Instruction and the University should jointly develop the criteria for the over-all character and quality of teacher-education programs in Delaware and determine the needs for teachers.

2. Although the development of criteria for teacher education is the responsibility of the Department and the University, the University should have the maximum responsibility for the implementation of the various education programs.

3. It is the responsibility of the state, by providing adequate facilities and financial resources, to staff the public schools with teachers of the kinds and number that they need. This implies funds for assessment of program needs, evaluation and implementation of programs, and research into innovations in education, especially new ways of using educational personnel.

4. While Delaware should not seek to employ only state-trained teachers, it should begin to produce a much higher percentage of the new teachers required annually to staff the public schools.

5. The education of teachers should be conducted within a framework of general education.

6. The need for clinical experience as well as theoretical knowledge may require a five-year program which integrates more supervised but responsible teaching with theoretical study.

7. The greater participation of student teachers in the real problems of education will improve the quality of undergraduate and graduate instruction, and at the same time may help to motivate would-be teachers to enter the field.

8. Greater flexibility is needed in appraising a person's qualifications for teaching so that those with valuable experience can be assured of entry into the profession at a level commensurate with their abilities. This is especially true of mature women who wish to re-enter the job market, and for people with skills needed for new programs.

9. The establishment of a doctoral program in education is of the first priority, both in the training of Delaware school administrators and in the strengthening of the College of Education that will be part of the expanded University.

10. At the undergraduate and master's levels, the most urgent needs are quality programs to train sufficient numbers of teachers and the coordinated participation of local schools throughout the state in this training process. The panel believes that recommendations to Delaware made by the Academy in 1965 to make teacher education more flexible continue to be relevant for the expanded University. These include:

a. "Recruiting liberal arts graduates into a fifth-year program of professional preparation, accompanied by the opportunity to continue academic studies in their fields of specialization.

b. "Developing University-school partnerships to provide paid internships, thus materially improving the clinical aspect of professional preparation and furnishing a means by which the costs of the fifth-year program may be borne in significant degree.

c. "Establishing alternative four-year and five-year teacher-education programs leading to teaching credentials and the appropriate degrees.

d. "Liberalizing the conditions under which undergraduate liberal arts candidates in two-and four-year programs may transfer to teacher education programs."

11. It should be the College of Education's responsibility to be concerned with the full range of education-training needs from preschool through adult programs. It should also be the College's responsibility to draw into its programs support from other appropriate divisions of the University.

12. The expanded University should substantially increase its involvement with the problems of urban education through greater cooperation with the Wilmington schools (see the chapter, "Toward an Urban University").

13. Of immediate concern to the expanded University should be training programs to staff secondary and post-secondary technical schools (see the chapter, "Technical Education").

Research and Development in Higher Education

The stimulus of a lively university-based research and development program makes itself felt at almost every level of a university and community. In an atmosphere of exploration, where men are consciously working on the frontiers of knowledge, education can take on a relevance and excitement for even the freshman who himself may not be involved in any research, but who has as his teacher a man who has been stimulated by participation in the world of new ideas.

Because trained manpower is the most critical element of a successful research and development program, and because there is currently a shortage of such personnel, extra-institutional factors have become much more influential in the establishment of a successful research program. Enticements such as high salaries and extensive fringe benefits must be accompanied by some of the following:

- Proximity to urban centers.
- Availability of educational opportunities at all levels.
- The presence of other research interests that attract scientists from several fields.
- Opportunities for participation in cultural events and civic affairs.
- An atmosphere for living and working influenced not exclusively by local interests.
- Favorable climate.

Studies of successful research and development regions indicate that success attracts more success; scientists are drawn to areas and institutions which have already shown that they are doing exciting and rewarding work in an expanding field of interest. Professors and scientists moving into these regions are assured not only of an attractive working environment, but also a community in which the things they value — good schools for their children, opportunities for further higher education, cultural advantages, recreational facilities, enlightened programs of urban management, an atmosphere of intellectual freedom — are provided.

Wilmington is an attractive area for research-and-development-minded scientific personnel. The extensive DuPont interests and the related petrochemical industry have made Wilmington the eighth richest metropolitan area in the United States in terms of the absolute number of people involved in research, development, and scientific management (see Table 1). For a city of Wilmington's size this ranking is even more impressive.

In addition, the panel notes the following features of Delaware that are favorable for expansion of research and development programs in the educational institutions:

> In the twenty-five major "science cities," 32 percent of scientists have Ph.D.'s; in Wilmington the figure is 53 percent.
>
> Located within the eastern megalopolis, close to urban centers and areas of concentrated industrial activity, Delaware is well situated to attract research and development projects.
>
> Delaware's climate is moderate and favorable for year-round living.

TABLE 1

The Twenty Metropolitan Areas Richest in Scientific Personnel

Regional complex or metropolitan area	Research & development		Management or administration
	Basic	Applied	
1. New York City complex	3,148	2,978	2,746
2. National-capital area	2,863	2,252	2,707
3. Los Angeles complex	1,504	1,548	1,479
4. San Francisco Bay area	2,204	1,381	989
5. Boston complex	2,031	1,037	779
6. Chicago complex	1,417	1,231	976
7. Philadelphia complex	1,035	1,020	791
8. WILMINGTON, DEL.	386	581	413
9. Pittsburgh	573	468	368
10. Minneapolis-St. Paul	537	444	351
11. Cleveland	451	458	314
12. Denver	513	312	206
13. Houston-Galveston	252	342	276
14. Rochester, N. Y.	341	297	207
15. Detroit	274	337	260
16. St. Louis, Mo.	303	329	247
17. Trenton, N. J.	470	265	187
18. Madison, Wis.	688	164	100
19. Knoxville, Tenn.	423	207	143
20. San Diego, Calif.	328	218	94

Source: **Fortune**, March 1966

Sixty percent or more of Delaware can be developed from an industrial point of view, allowing for adequate planned recreation, conservation, and residential uses.

The University of Delaware, the only institution of higher education in the state currently engaged in research and development, is located within a reasonable distance from the largest concentration of people and industrial resources in the state.

Surprisingly, one area of research that higher education seems to have ignored is that of the educational process itself. The questions of relevance and effectiveness of higher-education experiences have not received sufficient attention from those in higher education best qualified to assess them. If the nation's colleges and universities do not begin a serious, organized consideration of the relevancy of their programs to their students and the needs of the country, the unrest and dissatisfaction of today will be worse in the future. To avoid a permanently defensive posture in the face of outside pressure, higher-education institutions must take the lead in research on the impact of their educational programs on students, the effect of educational technology on higher education, and the nature of the relationship between the student and the university.

The panel made the following observations concerning the extent of University-based research and development in the context of all R&D facilities in Delaware and in comparison to nationwide efforts:

1. The present University budget for research and development is estimated to be about $3 million, a high percentage of which is direct University support, devoted almost completely to basic research, as against advanced, problem-solving projects.

2. The 1966-67 total R&D expenditure budget, reduced by subtracting land-grant expenditures for agricultural sciences, is estimated to be 24 percent of the $9,300,000 shown in the president's report for instruction, library operations, and research (other than agriculture).

3. Industrial R&D contracts with the University are slightly under the national figure of 12 percent.

4. Federal support to the University's R&D budget is considerably under the national figure of roughly 80 percent.

5. The percentage of University funds in its total R&D budget is well above the national average of 4 percent.

6. Foundation grants to the University are above the national average of 4 percent.

7. The University plans to increase its graduate program by strengthening the graduate faculty as an integral part of the total University faculty, and not by the establishment of a highly specialized graduate program with exclusive staff or equipment. Faculty members who because of this policy will be involved in the teaching of undergraduates, supervision of graduate work, and hopefully some faculty research, will have less time to devote to consulting or adjunct research activities directed to problem-solving.

8. Resisting directed research has been a trend of many major institutions in recent years, stemming as much from the faculty demand for freedom to publish as from any ideological considerations. The University of Delaware is within this trend in emphasizing basic research by integrating the graduate programs with the entire University. It has not, however, established the special administrative or institutional mechanisms through which more applied research might be carried on.

9. Research and development at the University has so far been concerned almost entirely with in-state problems, perhaps because the researchers need to justify expenditures according to how well they benefit Delaware.

10. By far the most sophisticated facilities for research and development in Delaware are those of DuPont and its related industries. Unfortunately, the panel's consultant found few indications of cooperation between the University and these industries. It seems that DuPont does its own research, and the smaller industries cannot afford to distribute their efforts to various academic institutions.

Recommendations

The panel makes the following recommendations to Delaware concerning its research and development:

1. The expanded University should establish and strengthen its relationships in all areas with nearby urban centers. The University must strengthen its ties to these centers to provide increased educational opportunities at its Newark campus — not only in the programs of study that involve research and development, but for the total enrichment of the educational and cultural climate that research and development personnel and their families desire.

2. The expanded University should establish viable relationships with industrial research centers. DuPont and its related industries, with their extensive and sophisticated research facilities, could make substantial contributions to the prestige of the University through coop-

erative efforts in research and development. The efforts would be mutually beneficial; by enhancing the prestige of the University, DuPont would be encouraging highly qualified faculty to work and teach there, and having a prestigious university nearby would in turn make the Greater Wilmington Area a more attractive place for potential DuPont employees.

3. The expanded University should develop training programs, especially at Wilmington, to turn out technical personnel of the types needed in research and development laboratories. To ensure that the programs are appropriate, the University should plan them in cooperation with local industries.

4. The expanded University should investigate the possibility of setting up a research park, to be established jointly by DuPont and the University.

5. The expanded University should establish relationships with an existing regional research and development center, such as the University City Science Center in Philadelphia. This would accomplish two things: involve the University with problems common to the whole region and help to break through state-line provincialism.

6. The expanded University should strive to increase its services toward developing the technology of the whole community.

7. The expanded University will be offering new curriculums drafted with future trends in mind. These new curriculums, designed with flexibility and scope for student initiative, will call for research projects that measure innovative educational efforts. There should be a continual assessment of the effects of educational content and methods on the students.

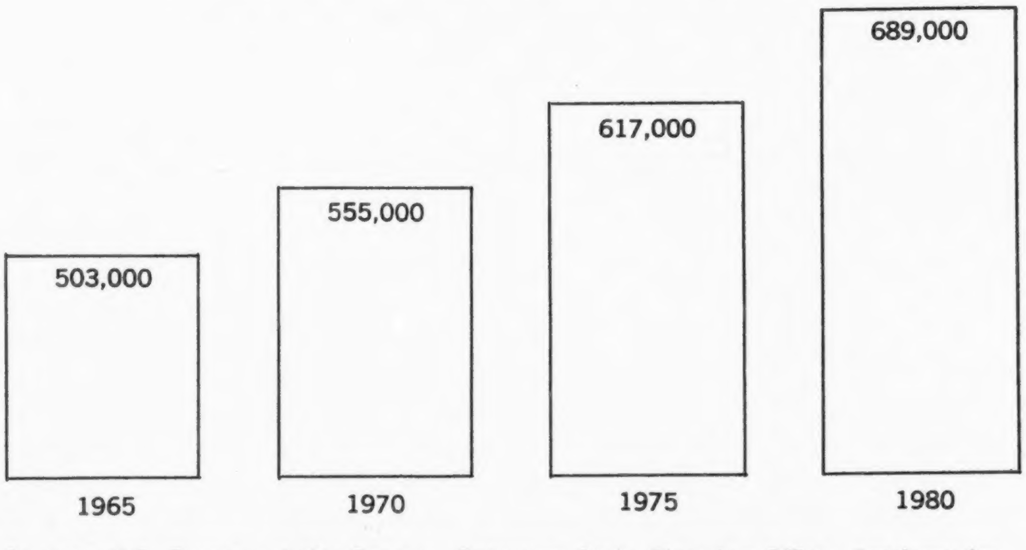
Future Higher-Education Enrollment

Delaware is one of the fastest-growing states in the nation. Between 1950 and 1960 its population increased by 40.3 percent while in the country as a whole it increased by 18.5 percent. This growth rate has continued into this decade; in the period from 1960 to 1966, while the national growth rate was 9.3 percent, Delaware's population increased by 14.9 percent, a rate surpassed east of the Mississippi only by Florida (19 percent) and Maryland (16.5 percent).

This growth is expected to continue for at least another two decades, as shown in Chart 1, so that by 1970 Delaware will have 555,000 residents; by 1975 this figure will grow to 617,000, and by 1980 it will be 689,000.

CHART 1

Population Projections for Delaware, 1965 to 1980

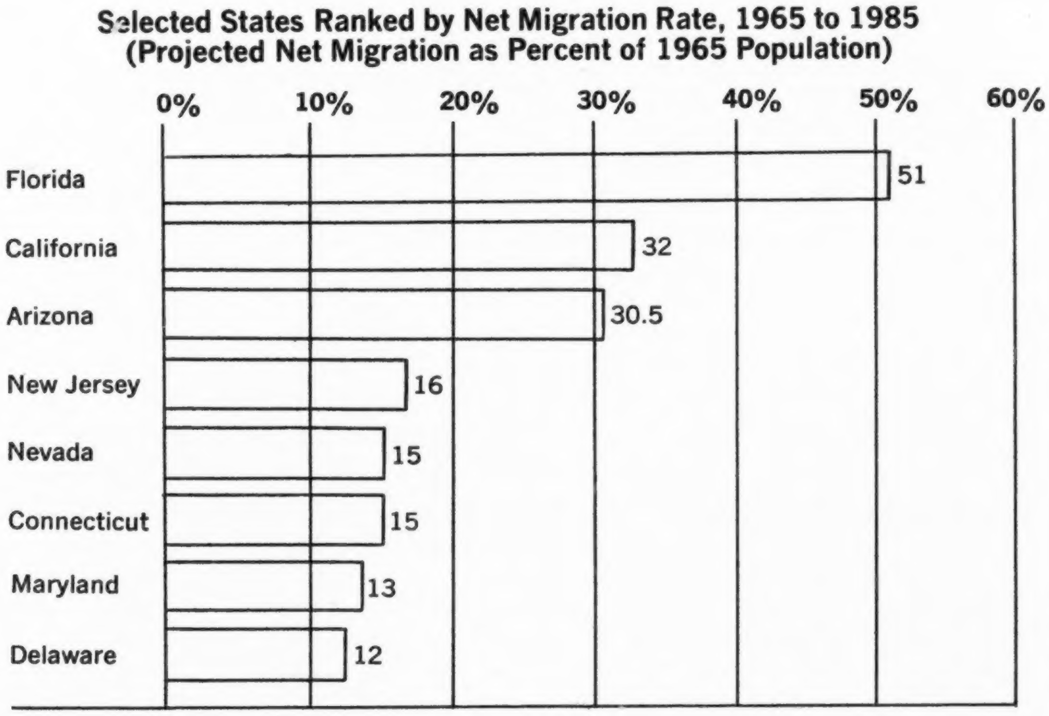


Source: U.S. Bureau of the Census, Delaware State Planning Office, Academy for Educational Development

This projected increase is expected to take place in the face of a decreasing birth rate for Delaware in the next two decades. In-migration will more than make up for the slackening birth rate. U.S. Census projections for the next two decades rank Delaware eighth in the United States in the percentage of in-migration, compared to total state population in 1965 (see Chart 2).

CHART 2

Selected States Ranked by Net Migration Rate, 1965 to 1985
(Projected Net Migration as Percent of 1965 Population)



Source: U.S. Bureau of the Census

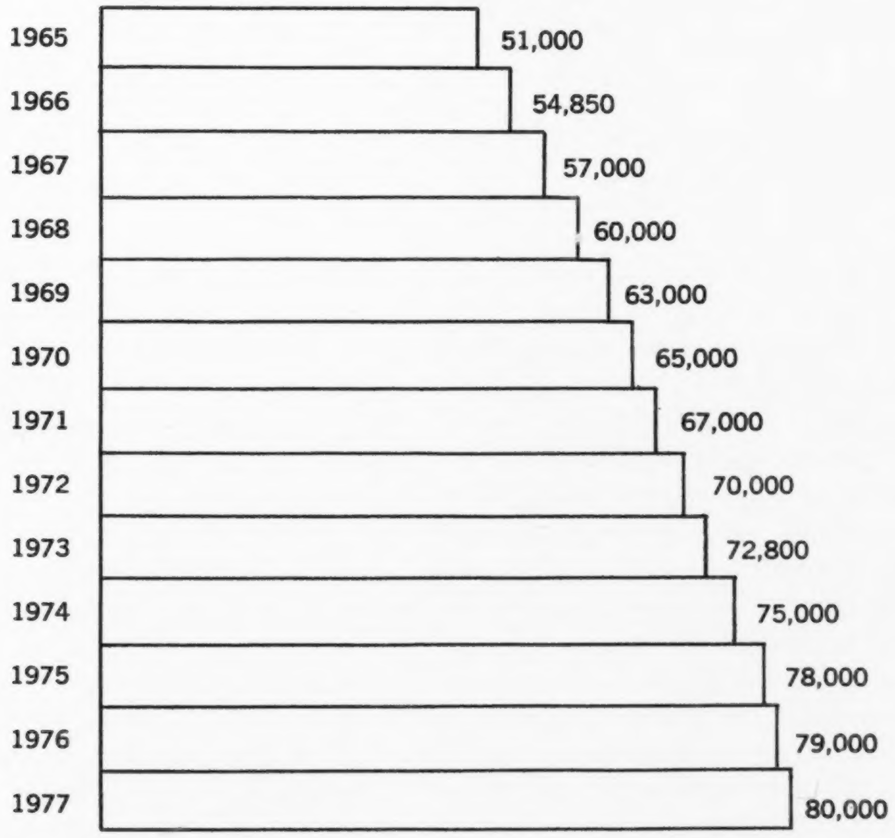
Reasons for this rapid growth are not difficult to pinpoint. The development of the Greater Wilmington Area, the construction of new highways, bridges, and tunnels that have opened up the southern part of the state, the reactivation of the Dover Air Force Base in 1951 — all these events have contributed significantly to past and projected economic development and the resultant population growth. Northern Delaware is by now an integral part of the eastern megalopolis. The southern part of the state, once thought to be permanently rural and seasonally recreational, shows promise of being occupied increasingly by industries that recognize the value of Delaware's central location on the eastern seaboard.

Because the developing industries in Delaware need personnel with specialized skills, the people migrating into the state, on the whole, have a higher than average educational background. For the most part, those seeking better economic opportunities in Delaware are young adults, members of the age group that is the most productive biologically as well as economically. And better-educated parents will naturally demand better higher-education opportunities for their offspring. Those concerned with planning higher-education programs and facilities for the next ten years must take into consideration that not only is Delaware's total population growing rapidly, but the college-age group (eighteen- to twenty-four-year-olds) is expanding at a considerably faster rate than the population as a whole. Chart 3 shows the projected number of eighteen- to twenty-four-year-olds by year through 1977. Chart 4 and Table 2 compare the growth rate of this age group with the entire population.

These estimates are conservative. The numbers may be considerably higher as a consequence of an even faster rate of industrial development and economic growth than currently predicted.

CHART 3

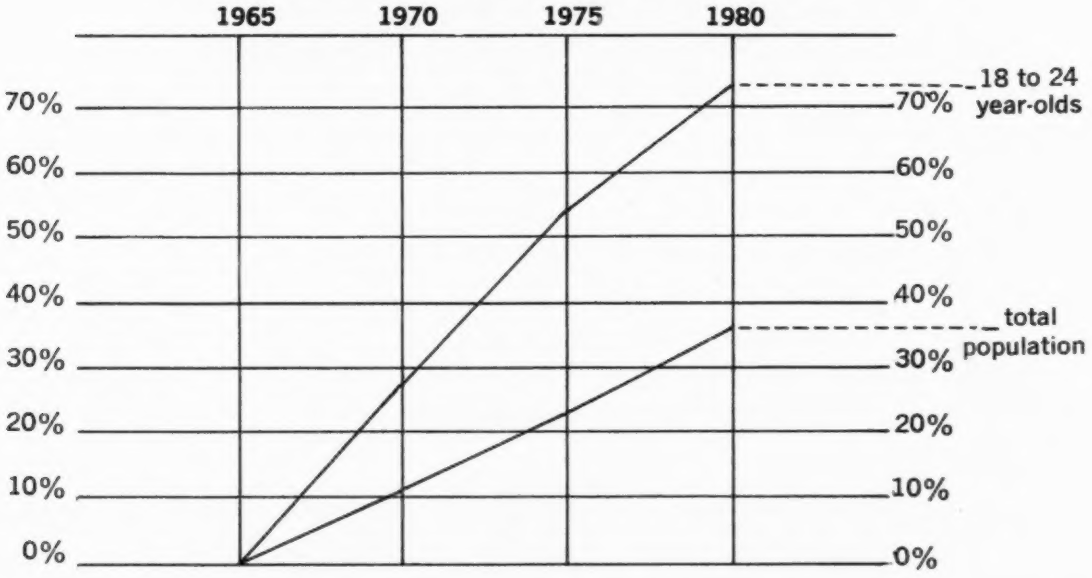
Estimated Population of Delaware, Eighteen- to Twenty-Four-Year-Olds 1965 to 1977



Source: U.S. Bureau of the Census

CHART 4

Percentage of Increase for Delaware of the Eighteen- to Twenty-Four-Year-Old Group Compared with Total Population Growth, 1965 to 1980



Source: U.S. Bureau of the Census

TABLE 2

Increases in College-Age Population (18 to 24) Compared to Increases in Total Population for Delaware, 1965-1980

Year	College-Age Population (18-24)	Percent Change from July 1, 1965 to date	Total Population	Percent Change for all ages
1965	51,000	.....	503,000	.....
1970	65,000	28.0%	555,000	10.2%
1975	78,000	53.7%	617,000	22.7%
1980	88,000	72.6%	689,000	37.0%

Source: U.S. Bureau of the Census

In addition to an absolute increase in the number of college-age young people, there will be changes also in the composition and proportion of this age group that will seek some kind of higher education in the next decade. Based on its experience of making projections in other states, the Academy believes that some basic assumptions can be made concerning the numbers and types of students that will enroll in the future in Delaware's colleges and universities:

1. It is reasonable to assume that by 1977 about *one-half* of Delaware's eighteen- to twenty-four-year-olds will seek some kind of higher education. That means 40,000 students.

2. At the present time about half of all Delaware's students in higher education are studying out of state. By 1977 the Academy expects this proportion will be considerably smaller. This change will be partly due to:

   The establishment of new higher-education institutions in Delaware.

   A greater number of students from low-income groups seeking higher education.

   Neighboring states' lack of capacity to accept into their public colleges and universities large numbers of out-of-state students.

   The increased attractiveness of college programs in Delaware.

3. A higher percentage of high-school graduates seeking higher education will enroll in two-year transfer or terminal programs.

4. In the future greater numbers of disadvantaged youth will be seeking some kind of higher education. These potential students will come increasingly from the urban centers.

5. Adding to the number of eighteen- to twenty-four-year-olds at the higher-education institutions will be a growing number of adults. They will be part-time or "unclassified" students wanting vocational or avocational training, especially at the two-year institutions.

6. At the present time the number of out-of-state residents studying in Delaware's public and private institutions of higher education is approximately 39 percent of all students in these institutions. The panel

predicts that this figure will diminish in the next ten years, at least in the public institutions.

Enrollment Projections

1. By 1977, the panel projects at least 44,000 students in and outside the state will seek higher education in the public and private higher-education institutions in Delaware. This represents more than a twofold increase over the enrollment of 16,186 in 1967-68.

While this estimate may seem high, it should be pointed out that estimates made by the institutions themselves and by Arthur D. Little, Inc., for this same period indicated a *tripling* of enrollment in Delaware's public and private institutions. While the panel shares the enthusiasm of the institutions and other researchers, and is aware of the impact that the establishment of more two-year terminal and transfer programs will have, it believes that its estimates are more realistic for planning purposes for the decade ahead.

2. The University's projection for graduate enrollment by 1977 is 3,300; this represents a considerable increase over the present number. The University's potential will not be fully realized until there is much more full-time graduate work in the areas where the University excels, and in those additional areas where the panel has recommended increased efforts and program development. As noted in the chapter on student aid, larger full-time graduate enrollment will require greater support for fellowships, graduate assistantships, and faculty research.

3. Many observers will feel that the enrollment projected for unclassified and special students seems high in comparison to present enrollment. The panel believes that in the light of national trends these estimates are not unreasonable. The increase will no doubt occur because of new opportunities in the urban areas of the state and because these programs will be under the auspices of the University of Delaware.

4. The state and education officials responsible for Delaware's higher education in the future should recognize the opportunities that are provided by a continuing and extension education program. Although the University's efforts have produced admirable results, the panel believes that greater state-wide coordination of this program would accommodate many more potential students.

In Delaware during 1967-68 there were 16,186 students enrolled in five institutions of higher education (see Table 3).

TABLE 3

Total Enrollment in Delaware Institutions of Higher Education by Program, 1967-68

	1- and 2-Year terminal and transfer	4-Year degree credit	Grad. degree credit	Special, contin., exten.	Total
Public Institutions					
University of Delaware	247	6,301	1,898	3,382	11,828
Delaware State College	....	784	....	116	900
Delaware T.C.C.	475	....	....	700	1,175
Private Institutions					
Brandywine College	1,024	....	....	200	1,224
Wesley College	1,059	....	....	....	1,059
Total	2,805	7,085	1,898	4,398	16,186

Source: Information supplied by each institution

TABLE 4

Enrollment in Delaware Institutions of Higher Education Full and Part Time, 1968 to 1977

Programs	1968	1972	1977
One- and Two-Year Terminal and Transfer			
Public	722	4,000*	7,200*
Private	2,083	2,900	3,600
Four-Year Degree Credit			
Public	7,085	9,200*	14,000*
Private	....	800	1,500
Graduate and Professional for Credit			
Public	1,898	2,450*	3,300*
Private	....	....	....
Special, Continuing, Extension			
Public	4,200	8,000*	14,600*
Private	200	350	450

*Public-institution enrollment is for the consolidated University of Delaware.

In making projections for the future enrollment in Delaware, the Academy based its estimates on individual institution projections as well as on U.S. Bureau of the Census projections, its experiences in other states, and its knowledge of national trends in education. Table 4 depicts what the Academy panel believes to be reasonable estimates of the number of students by program level for the next ten years.

Ten years from now it is reasonable to assume that over 44,000 people in Delaware, in contrast to 16,000 today, will be pursuing study programs in higher education. Many will be seeking cultural enrichment; others will be training for job skills; some will be preparing for high-level professional skills; and still others will be retraining in high-level professional skills already mastered. The burgeoning need for this variety of training and education argues forcefully for a well-organized state-wide response. To achieve this multifaceted growth, the panel proposes as its solution the consolidated structure of state-wide public higher education in Delaware under the University.

Facilities for Higher Education

During the next ten years the public and private higher-education institutions in Delaware will have to try to accommodate some 2,800 additional students annually in full- and part-time, undergraduate and graduate, on-campus and off-campus programs. This means that each year, on the average, twice as many students as are now enrolled in Delaware State on a full- and part-time basis will clamor for entrance. As elsewhere in the nation, many of the facilities — libraries, classrooms, laboratories, student centers, faculty offices, dormitories, dining halls — needed to support the total program in Delaware have yet to be expanded or planned and built. Most of this growth will take place in the public sector.

Delaware's institutions face this growth with some degree of uncertainty. For example:

1. The three-segment system of public higher education is uncoordinated and each semester there is an escalation of the wasteful duplication of programs.

2. The public-education facilities allocated to the area of greatest enrollment increase — two-year terminal, technical, and transfer education — are located or are being located in places difficult to reach from areas with the densest concentration of population. And they are being developed without reference to the existing excellent facilities and programs in vocational education.

3. One of the newest but least used higher-education facilities in Delaware is located forty miles from the state's population center and has a historical, academic, and racial tradition that is outdated and that limits its attractiveness and usefulness for whites and Negroes alike.

4. The public institution with the greatest resources in faculty, facilities, and the know-how to carry out planning and to conduct programs of excellence in all areas of higher education has either remained aloof or has been barred from state-wide activities where its leadership would be very important.

5. The private higher-education institutions are small and moderately specialized. They serve students mostly from outside of Delaware. Two of them are quite new. Their record in the utilization of facilities

and other resources is excellent, but if they are to grow at all they will need considerable help.

The Academy asked all of the public and private higher-education institutions in Delaware to study and report on the extent, condition, and utilization of their present educational and auxiliary facilities and their needs and plans for new construction during the next six years. While on-campus surveys, institution by institution, would have been preferable to asking each institution to establish its own needs, the scope of this study did not permit the more thorough approach.

Participating in the study from the public sector were the University, the State College, and the Technical and Community College. The three private institutions operating in the fall of 1967 were invited to participate and two — Wesley and Brandywine — agreed to join in the study. A new four-year institution, Wilmington College, opened its doors in the fall of 1968. We were not able to include it in this analysis.

These studies by the institutions were, of course, made without prior knowledge of the panel's recommendations for the re-organization of future institutional roles. The reports plus various summaries of them, including computer print-outs for each institution reporting, have been made available to each institution and to the Higher Educational Aid Advisory Commission. From the reports received and the comments of our consultant, the panel made these observations:

1. In the fall of 1967 about 95 percent of the assignable square footage in the buildings that house the classrooms, libraries, and laboratories used for instructional purposes in Delaware's higher-education institutions was reported by the institutions to be generally of good quality, requiring, over the next ten years, only normal maintenance to assure continued utilization (see Table 5). This is an excellent situation and reveals a strong foundation for future expansion.

With respect to the individual institutions, our consultant notes:

> At the State College the plans to rehabilitate the "T" Building would cost more than the building is worth. While it was reported that Jason Library needs minor rehabilitation, it will probably need to be greatly enlarged or possibly replaced if the Dover campus of the expanded University is to have library facilities adequate for the future. Delaware Hall is structurally sound but functionally very poor, and as plans develop to exploit the full use of the building, a major renovation will be needed.
>
> At the University there are a number of aging academic buildings that are in the demolition category. The R.O.T.C. Building was constructed in 1903, the Taylor Gymnasium in 1904, the Military Laboratory in 1870, the building at 231 South College Avenue in

> 1915, and the Combustion Laboratory in 1948. These small buildings, totaling only 36,775 gross square feet, are old, of relatively poor structural condition, and occupy space that is needed for expansion. In the long run, it will be less expensive to replace these buildings than to attempt to maintain them.
>
> Wesley College will have to make a major decision on whether to continue to use "Old Main" as an academic building or to retire it for historical purposes. The basic structure is not strong and shows the wear and tear of a building constructed in 1873. It is assumed that a decision regarding the building will be based on its historical status rather than on structural soundness alone.
>
> Brandywine College and the Technical and Community College reported no academic facilities in need of rehabilitation or demolition at this time.

2. Dormitory and dining facilities, according to the reports supplied by the institutions, require no rehabilitation or demolition (see Table 6).

3. The condition of auxiliary facilities in the higher-education institutions is not as good as the other major facility areas. Auxiliary facilities include such miscellaneous types of buildings as the president's home, barns, utility systems, student unions, faculty apartments, etc. These are the facilities that are required to support the academic and student housing facilities. Their condition is shown in summary form in Table 7. About 13 percent of existing facilities should be rehabilitated or demolished. The situation is most acute at Delaware State College.

The panel's consultant made the following report on the auxiliary facilities in Delaware's higher-education institutions:

> The Delaware Technical and Community College in Georgetown has three houses that were on the property when it was purchased. The future use of these buildings is debatable at present. When an appropriate function is determined for the buildings, funds will be required to remodel or rehabilitate them.
>
> The facilities at Delaware State College that need rehabilitation include two faculty apartments, a machine shed, a milk plant, a swine-farrowing house, and a chicken house. The apartments should probably be retained, but it is doubtful that funds should be expended on the other facilities until decisions are made regarding the continuation of a minimal agriculture program at Delaware State. Certainly, at the present time, most of the facilities for agri-

TABLE 5

The Condition of Academic Facilities of Institutions of Higher Education in Delaware*

	Satisfactory		Rehabilitate		Demolish		Total	
Institution	Assignable Area	Gross Area	Assignable Area	Gross Area	Assignable Area	Gross Area	Assignable Area	Gross Area
Delaware Technical and Community College	90,143	128,769	.....	.....	.....	.....	90,143	128,769
Delaware State College	147,093	209,003	14,726	17,706	.....	.....	161,819	226,709
University of Delaware	697,378	1,128,395	.....	.....	21,883	36,775	719,261	1,165,170
Subtotal	934,614	1,466,167	14,726	17,706	21,883	36,775	971,223	1,520,648
Brandywine College	18,704	28,431	.....	.....	.....	.....	18,704	28,431
Wesley College	51,617	75,532	15,751	22,275	.....	.....	67,368	97,807
Subtotal	70,321	103,963	15,751	22,275	.....	.....	86,072	126,238
GRAND TOTAL	1,004,935	1,570,130	30,477	39,981	21,883	36,775	1,057,295	1,646,886

Source: Data supplied by higher-education institutions.
*All measurements in square feet

TABLE 6

The Condition of Dormitory and Dining Facilities of Institutions of Higher Education in Delaware*

	Satisfactory		Rehabilitate		Demolish		Total	
Institution	Assignable Area	Gross Area	Assignable Area	Gross Area	Assignable Area	Gross Area	Assignable Area	Gross Area
Delaware Technical and Community College								
Delaware State College	87,076	154,366	.....	.....	.....	.....	87,076	154,366
University of Delaware	683,913	1,070,829	.....	.....	.....	.....	683,913	1,070,829
Subtotal	770,989	1,225,195	.....	.....	.....	.....	770,989	1,225,195
Brandywine College	57,827	67,202	.....	.....	.....	.....	57,827	67,202
Wesley College	63,162	111,462	.....	.....	.....	.....	63,162	111,462
Subtotal	120,989	178,664	.....	.....	.....	.....	120,989	178,664
GRAND TOTAL	891,978	1,403,859	.....	.....	.....	.....	891,978	1,403,859

Source: Data supplied by higher-education institutions.
*All measurements in square feet

culture are in questionable condition. To offer a strong program would require considerable development beyond replacing the above mentioned buildings.

The facilities recommended for demolition at the University of Delaware are a house and garage purchased in 1961 and 1962 which are being used for storage purposes.

TABLE 7

The Condition of Auxiliary Facilities of Institutions of Higher Education in Delaware*

	Satisfactory		Rehabilitate		Demolish		Total	
Institution	**Assignable Area**	**Gross Area**	**Assignable Area**	**Gross Area**	**Assignable Area**	**Gross Area**	**Assignable Area**	**Gross Area**
Delaware Technical and Community College	212	212	2,872	2,872	.....	.....	3,084	3,084
Delaware State College	74,329	103,746	9,486	10,865	12,460	31,092	96,275	145,703
University of Delaware	224,886	318,157	.....	.....	15,586	16,578	240,472	334,735
Subtotal	299,427	422,115	12,358	13,737	28,046	47,670	339,831	483,522
Brandywine College	11,827	14,500	.....	.....	.....	.....	11,827	14,500
Wesley College	24,459	38,319	.....	.....	.....	.....	24,459	38,319
Subtotal	36,286	52,819	.....	.....	.....	.....	36,286	52,819
GRAND TOTAL	335,713	474,934	12,358	13,737	28,046	47,670	376,117	536,341

Source: Data supplied by higher-education institutions.
*All measurements in square feet

There is considerable interest today in how well higher-education facilities are being utilized. This interest is keen in the legislative halls and administrative offices of the various states because of the high cost of construction. The pertinent questions are these: Are the buildings being utilized adequately? To what extent can they be utilized further? How many more students can be accommodated?

We attempted to develop some answers to these questions in Delaware in this study by appraising the utilization of buildings in both the public and private higher-education institutions. We used data that was prepared by the individual institutions. As a measure of utilization we used the space-factor concept widely accepted today in the higher-education facilities planning field. To compute the space factor, the total net assignable square feet of classroom space is divided by the total student contact hours (or weekly student-hours). The relationship is then expressed in terms of net assignable square feet per student contact hour. An example of such use follows: a classroom that seats forty students with an average of fifteen net assignable square feet per student station (600 net assignable square feet), where classes are taught thirty hours a week, and which has an average class size of twenty-four students will have a space factor of .83 net assignable square feet per student contact hour $\left(\frac{40 \times 15}{24 \times 30}\right)$.

A space factor of .83 is generally regarded as a desirable goal by an institution of more than 1,000 students. The state of Oklahoma uses a space factor of .89 for institutions of less than 1,000; .84 for institutions with 1,000 to 3,000 students; and .80 for institutions with more than 3,000 students. California uses a space factor of .67 for planning purposes. The mean space factor for public universities in Illinois is .78.

The classroom space-utilization situation in Delaware is described in Table 8. With respect to classroom utilization our consultant notes that:

1. In comparison with the standards of other states, the classroom utilization at the two private institutions and at the University of Delaware is excellent.

2. Delaware State College can triple its present enrollment in terms of its available classroom space. This situation is partly due to the recently completed Home Economics and Business Building, which provides a substantial amount of space, but which is not used.

3. Delaware Technical and Community College in Georgetown, which is just getting started as a college and is rapidly expanding into its renovated facilities, could handle increased enrollment in its present classrooms.

We also looked into the utilization of laboratories in the higher-education institutions. The same type of space factor is used to evaluate and project laboratory-space needs as for classrooms. Oklahoma uses space factors of 1.97 to 7.50, depending upon the net assignable square feet per student station in a particular subject field. California's laboratory-space factors vary from 1.40 to 9.40, with the average space factor approximating 4 net assignable square feet per weekly student-hour. The Illinois study showed a weighted mean at 3.82, with a range of 2.98 to 4.53 among the eight public universities.

The above indicators may be compared with the data in Table 8, which shows the two private institutions in Delaware to be well within the limits established by these indicators. The University of Delaware with a factor of 4.07 compares very favorably with the space-factor indicators from the other states.

The use of laboratory facilities at Delaware Technical and Community College and Delaware State College indicates that enrollment in these two institutions could be at least tripled before the space use would approach the space-factor indicators shown.

TABLE 8

Classroom and Laboratory Utilization in Institutions of Higher Education in Delaware

Institution	Classroom: Student Contact Hours	Classroom: Assignable Sq. Ft.	Classroom: Sq. Ft. per SCH	Laboratory: Student Contact Hours	Laboratory: Assignable Sq. Ft.	Laboratory: Sq. Ft. per SCH
Delaware Technical and Community College	7,666	17,681*	2.306	615	8,230*	13.38
Delaware State College	11,454	30,540	2.667	2,549	48,423	19.00
University of Delaware	107,860	86,487	.801	26,533	107,869	4.07
Subtotal	126,980	134,708	1.061	29,697	164,522	5.54
Brandywine College	14,794	10,576	.715	1,968	3,320**	1.69
Wesley College	10,737	8,404	.782	3,362	12,038	3.58
Subtotal	25,531	18,980	.743	5,330	15,358	2.88
GRAND TOTAL	152,511	153,688	1.008	35,027	179,880	5.13

Source: Data supplied by higher-education institutions.

*Only space that was in use is shown in this table. The inventory shows 29,401 net assignable square feet of classroom space and 19,918 net assignable square feet of laboratory space.

**Three rooms used for both classroom and laboratory functions

We were interested in determining the capacity of the institutions to accommodate additional students. Tables 9 through 13 show some of the comparisons that were made in determining the capacity of the institutions to accommodate students. The departments of instruction and research, as an organizational unit, are regarded as the prime occupiers of space on a college campus, using most of the instructional, office, and laboratory facilities. Table 9 illustrates this fact, showing the largest percentage of space used by the departments of instruction and research at two of the institutions, Delaware Technical and Community College (31.54 percent) and Delaware State College (43.46 percent).

However, the other three institutions show the largest percentage of their total net assignable space in the auxiliary-services space category, which includes such revenue-producing space as that used for auditoriums, food service, health facilities, merchandising, athletics, and housing. Thus the campuses that house a major portion of the total number of students are likely to have the largest amount of their space used for auxiliary services.

To explore this question further, the amount of space per full-time-equivalent student in auxiliary services (Table 10) varies from 27.32 to 125.24 net assignable square feet. The same space per head count of students (Table 11) varies from 26.46 to 101.55 net assignable square feet, while the residential facilities per student housed (Table 12) show a range of 91.27 to 167.35 net assignable square feet.

When capacity is based upon the instructional space required per student, the tables that best illustrate this measurement are Table 10 and 13, which show the net assignable square feet per full-time-equivalent student. Note that the departments of instruction have a range of 15.15 to 162.98 NASF/FTE student. Why a variance? A careful study of Table 13 shows the relationship between the major types of rooms which illustrates the differences. For example, Brandywine College has a limited curriculum that requires no laboratory study, not uncommon in a two-year liberal arts and business program; it provides limited library and study space; it allows for practically no office space for faculty; and it does an excellent job of scheduling. The University of Delaware, on the other hand, has a major research program, which requires approximately 15 NASF (Table 14) of the total 82 NASF assigned to the department of instruction and research (Table 10). Yet Table 13 shows that the University has less NASF/FTE student than Brandywine. The broad curriculum of the University requires extensive laboratory and library study space per student and extensive laboratory and office space per faculty member (only 15.31 NASF of the 24.81 NASF is for faculty).

A comparison of the NASF/FTE student between the University and Wesley College, which offers a traditional liberal arts program for freshmen and sophomores, is of interest. Note that the classroom and office NASF/FTE student are reasonably close (Table 13). The NASF/FTE student figures for the departments of instruction and research (Table 10) are very close when the research space of the University is subtracted (66.78 to 69.69 NASF/FTE student), and yet the University shows twice the amount of laboratory space per FTE student.

TABLE 9

The Percentage of the Total Net Assignable Space Allocated to Major Organizational Units in Institutions of Higher Education in Delaware

Organizational Unit	Delaware Technical and C. C.	Delaware State College	University of Delaware	Brandywine College	Wesley College
Departments of Instruction and Research	31.54%	43.46%	32.90%	17.64%	36.60%
Organized-Activity Units	....	....	.34	....	....
Public-Service Units	....	....	2.11	....	1.00
Library	4.09	4.53	5.32	1.33	1.66
General Administration & Institutional Services	16.82	21.97	6.21	14.75	16.61
Auxiliary Services	13.94	27.46	50.28	66.29	42.03
Non-Institutional Space	....	....	.10	....	....
Unassigned Space	33.62	2.54	2.74	....	2.09
TOTAL	100.01%	99.99%	100.00%	100.01%	99.99%

Source: Data supplied by higher-education institutions.

TABLE 10

The Net Assignable Square Feet per Full-Time-Equivalent Student by Major Organizational Units in Institutions of Higher Education in Delaware

Organizational Unit	Delaware Technical and C. C.	Delaware State College	University of Delaware	Brandywine College	Wesley College
Full-Time-Equivalent Enrollment (Fall 1967)	460	773	6,570	1,024	731
Department of Instruction and Research	61.81	162.98	81.96	15.15	69.69
Organized-Activity Units	....	....	.84	....	....
Public-Service Units	....	....	5.27	....	1.92
Library	8.02	17.00	13.24	1.14	3.15
General Administration	32.96	82.38	15.47	12.67	31.63
Auxiliary Services	27.32	103.35	125.24	56.93	80.03
Non-Institutional Agencies	....	....	.25	....	....
Unassigned Space	65.88	9.66	6.82	....	3.98
TOTAL	195.99	375.37	249.09	85.89	190.40

Source: Data supplied by higher-education institutions.

TABLE 11

The Net Assignable Square Feet per Student (Head-Count) by Major Organizational Unit in Institutions of Higher Education in Delaware

Organizational Unit	Delaware Technical and C. C.	Delaware State College	University of Delaware	Brandywine College	Wesley College
Head-Count Enrollment (Fall 1967)	475	784	8,446	1,024	1,059
Depts. of Instruction and Research	59.86	160.70	63.76	15.15	48.10
Organized-Activity Units	....	.....	.66	....	....
Public-Service Units	....	.....	4.10	....	1.33
Library	7.76	16.76	10.30	1.14	2.18
General Administration	31.92	81.22	12.03	12.67	21.84
Auxiliary Services	26.46	101.55	97.42	56.93	55.25
Non-Institutional Agencies	....	.....	.20	....	....
Unassigned Space	63.80	9.52	5.30	....	2.75
TOTAL	189.80	369.75	193.77	85.89	131.45

Source: Data supplied by higher-education institutions.

TABLE 12

The Net Assignable Square Feet per Student (Head-Count) by Major Type of Room-Space Category in Institutions of Higher Education in Delaware

Type of Room	Delaware Technical and C. C.	Delaware State College	University of Delaware	Brandywine College	Wesley College
Classroom	61.90	38.95	10.24	13.57	7.94
Laboratories	41.93	65.52	30.34*	.....	11.37
Office	24.52	35.43	19.30*	6.03	14.58
Study Facilities	8.41	17.57	12.25	1.14	5.39
Special-Use Facilities	2.62	43.73	15.68*	3.23	16.26
General-Use Facilities	29.44	72.15	10.88	11.41	24.97
Supporting Facilities	20.95	4.59	8.70	1.48	9.47
TOTAL NASF/STUDENT	189.77	277.94	107.39	36.86	89.98
Student Residential Facilities	.....	70,508	682,182	50,204	43,899
Students Housed	.....	509	4,415	300	481
Sq. Ft./Student Housed	.....	138.52	154.5	167.35	91.27

Source: Data supplied by higher-education institutions.

*Including research space

TABLE 13

The Net Assignable Square Feet per Full-Time-Equivalent Student by Major Type of Room-Space Category in Institutions of Higher Education in Delaware

Type of Room	Delaware Technical and C. C.	Delaware State College	University of Delaware	Brandywine College	Wesley College
Classroom	63.92	39.50	13.16	13.57	11.50
Laboratory	43.30	66.45	39.00	....	16.47
Office	24.32	35.93	24.81	6.03	21.13
Study Facilities	8.68	17.82	15.75	1.14	7.81
Special-Use Facilities	2.71	44.35	20.16	3.23	23.56
General-Use Facilities	30.40	73.17	13.99	11.41	36.18
Supporting Facilities	21.64	4.66	11.18	1.48	13.72
TOTAL NASF/FTE STUDENT	195.97	281.88	138.05	36.86	130.37

Source: Data supplied by higher-education institutions.

TABLE 14

Comparisons of the Research Space Inventoried at the University of Delaware

Major Space Units	Net Assignable Sq. Ft.	Percent of Total Net Assignable Sq. Ft.	Net Assignable Sq. Ft.	
			Per FTE Student	Per Head-Count Student
Organizational Units				
Departments of Instruction and Research	99,891	6.10%	15.22	11.83
Auxiliary Services	10,688	.65%	1.63	1.27
Type of Room				
Laboratory	95,935	6.04%	14.60	11.36
Office	1,166	.07%	.18	.14
Special-Use Facilities	10,688	.67%	1.63	1.27
Supporting Facilities	1,276	.08%	.19	.15

Source: Data supplied by the University.

With respect to institutional capacities in general, our consultant notes:

Brandywine College has provided much of the general-use facilities within its residential space. If Brandywine continues to shift its status from that of a business college to that of a liberal arts college, it will have to expand library, laboratory, and faculty-office facilities in a greater proportion than classroom space. Such facilities as physical-education and athletics space and an auditorium may also be required when the program changes and develops. Brandywine has done an excellent job of providing, with a minimal amount of space, very comfortable and highly functional facilities.

Wesley College's facilities can be expanded with a relatively small amount of additional space per student. Such basic facilities as the gymnasium, auditorium, and other special and general-use facilities are already in existence and will continue to serve a larger number of students. Unless there is a major change in its programs, the laboratories can also serve a larger number of students. Thus the academic space required for expansion is that of additional classrooms and offices, as well as an enlarged library. Indeed, the planned library, with part of its area serving temporarily as classrooms and offices, could provide enough space to increase the student body by another 400 to 500 students, if housing could also be found.

Delaware Technical and Community College. Any assessment of capacity at this time would be grossly unfair to this new college. As its goals, its curriculums, the needs of the community, and the desires of the students and faculty are considered in developing this institution through a master plan, its facility needs will become evident. The existing facilities should be capable of accommodating approximately 1,200 full-time-equivalent students before new facilities are constructed. This figure could be revised downward if emphasis is placed on the vocational student instead of the transfer student. A good start has been made in adapting a secondary school into a technical-community college. Farsighted planning with all forces involved will develop the college into an institution of higher education of which Delaware can be proud.

Delaware State College's facilities are an enigma when the promise of the future shown in the science center and the home economics and business buildings is contrasted to the agricultural facilities and Delaware Hall. When this study was made, it was evident that there was almost a complete lack of planning for facilities that would be relevant to the academic program of the institution. Each new building has been arranged for without any relationship to a total campus plan, whether the plan was academic or architectural. To determine the capacity of the existing facilities without sound projections for the future is a difficult if not impossible job. The State College's classroom and laboratory facilities can accommodate three times its present number of students, when appropriate curricular programs are developed. The basic type of space that will need expansion is the library. The solution for the State College is to develop a comprehensive master plan.

The University of Delaware's capacity is not easily determined. For example, the existing classroom space cannot hold more than 1,000 additional FTE students without hampering the academic programs. Yet the laboratories could serve an additional 4,000 students if the academic program does not change emphasis and if the space is not required for research purposes. Thus the existing campus could gradually enroll 600 additional undergraduate students, with additional housing, research, and office space. But it must be remembered that no campus can stand still and achieve sufficient capacity. It takes three to six years to complete the planning-construction cycle. An expanded comprehensive master plan, which will integrate the research and academic needs of the University, will allow for more detailed planning of facilities.

The University of Delaware is building a good, solid academic campus at reasonable costs. With the continuation of intelligent planning, combining the physical aspects with academic considerations, the University of Delaware will compare favorably with any other state university of its size in the nation.

Recommendations

For the future of higher-education facilities in Delaware, the panel recommends that:

1. A state-wide campus master plan should be developed for the expanded University. Such a state-wide plan should include, in the following order:

    a. A careful definition of the level and scope of academic programs at each campus. Unnecessary duplication of programs should be avoided.

    b. Detailed enrollment projections (targets) for each campus should then be developed in light of the academic programs planned for each campus.

    c. Projections of faculty and staff needs at each campus should then be developed, based upon formulae that reflect the academic programs and enrollment projections for each.

    d. Projections of the operating expenditures at each campus should be made for each academic program to assist in determining the economic feasibility of such programs.

e. Projections of facilities and land needs should be based upon the above projections and a detailed method of projecting such needs. In projecting facility needs, the following space factors should be used:

Classroom	
Less than 1,000 FTE students	1.00 NASF/WSH*
With 1,000 to 3,000 FTE students	.83 NASF/WSH
More than 3,000 FTE students	.67 NASF/WSH
Laboratory	
Graduate program including agriculture	4.5 NASF/WSH
Undergraduate liberal arts program	3.0 NASF/WSH
Technical programs	4.5 NASF/WSH

Office

An allowance of 140 net assignable square feet per person requiring office space (to include office-service space and conference rooms).

Library

An allowance of 1 NASF/10 volumes for stack space.

An allowance of 20 NASF/reader for 25 percent of the students.

Service space to be treated similar to office space.

All other

Special-use facilities, general-use facilities, supporting facilities, and residential facilities should depend on the needs of the individual facility.

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* *Net assignable square feet per weekly student hour.*

2. In developing the state-wide master plan for the expanded University:

a. Each campus should establish a planning committee that would consist of the chancellor, president, dean or business officer, the registrar, representatives of the faculty, and representatives of the student body. Subcommittees could be formed to study each element of the plan.

b. A state-wide University planning office should be adequately staffed to coordinate and direct the planning efforts of the local campuses.

c. The preliminary plans of each campus should be collated to form a total picture for the state. The review of the expenditures indicated in such a total plan by the appropriate University officials and the board of trustees will then provide a base upon which policy may be developed and decisions made regarding the role and scope of each campus.

d. The policy developed by the board of trustees will then be adopted by each campus and the master plan will be reshaped and developed at these campuses in light of the stated policy.

e. The development of a master plan is a continuing process in which each campus keeps reshaping its programs, procedures, and policies.

3. When the master plan is completed, the architectural plan for the state may be developed. Architectural plans must be developed from the master plan and should include:

   a. The programming of space needs by organizational units and the types of rooms based upon appropriate space factors.

   b. Architectural and engineering studies of land use, utilities systems, and site acquisition should interpret the role and scope of each campus.

   c. Provision for new buildings and other facilities for the next ten years, including their locations and general arrangements.

4. Provision should be made by the Legislature to provide some support to the Higher Educational Aid Advisory Commission so it can hire professional staff and consultants to help with the major expansion and re-organization of the campuses that this report recommends. The institutions, public and private, contemplate a total expenditure of over $110 million for facilities in the next six years. Some of this money must come from private sources, but most of it should come from the state and the federal government. If the state were to allocate $150,000, or $30,000 each year for five years, to the commission to aid in careful planning for the future, it would be money well spent.

5. The third year of planning grant funds available under the Facilities Act should, if the panel's recommendations for consolidation are carried out, be used totally or primarily to help the expanded University develop the state-wide master and architectural plans recommended above.

6. The commission, in establishing priorities and in evaluating future requests from the institutions for support under the Higher Education Facilities Act, should use the various space factors recommended under item 1-e above.

7. The Delaware State Planning Office should be expected in the future to work cooperatively with the commission and to seek its advice in establishing the relative priorities of requests from the expanded University in relation to the requests of other state agencies for construction funds.

Financing Higher Education

Delaware's Right to Education Act states explicitly the belief that underlies American higher education: the opportunity for a post-secondary education is a right of all citizens and a primary responsibility of the state government. The pressures on higher education today are largely caused by students exercising this right and by the government's attempts to meet its responsibility. Enrollment and cost projections for the nation indicate that by 1970 educational and general expenditures of public and private institutions will reach about $16.5 billion, assuming an annual price-level increase about equal to that of the past decade. If one allows for reasonable increases in tuition and other nongovernment sources of funds, the outlook is that government sources, state and federal, will have to contribute about $9.5 billion of the total current funds for 1970. These projections do not include the outlays necessary for capital programs.

Nationally, this means that the public's tax contribution in 1969-70 for higher education in relation to total income will have to double that of 1961-62. Although federal support for higher education has been rising rapidly in recent years, a sizable portion of the projected increase will have to come from state and local governments. Therefore, it is not unreasonable to assume that the public's tax share as a percentage of personal income might double in this period. The pattern in Delaware can be expected to follow this national trend.

Estimates of growth in costs and number of students made ten years ago have been more than substantiated by present developments, and there is no reason to assume that this growth will subside in the near future. Educators and state legislators realize increasingly the gravity of the situation and are working to impress upon the public the need for greater support of higher education. They are also working to make sure that the most efficient arrangement exists for the organization and management of this rapidly expanding and most essential part of public enterprise.

Public funds are not limitless, however, and the increasing role of the public sector in all areas of life will mean that there will be even greater competition for local, state, and federal monies. The panel lists the following methods that are being used by higher-education organizations across the country to finance the rising costs of education:

1. Increasing tuition charges at public institutions.

2. Encouraging attendance at private institutions through scholarship aid and limited public direct support to the institutions.

3. Eliminating wasteful duplication of facilities, programs, and activities through more effective coordination.

4. Expanding the number of opportunities for study at low-cost campuses and colleges close to home.

5. Exploring private means of financing dormitory construction.

6. Entering into cooperative arrangements with appropriate educational and civic institutions, both in the state and out of state.

7. Making the maximum use of technical developments to centralize and streamline administrative and financial practices, as well as the use of the new instructional techniques, such as TV for on-campus use.

8. Increasing the utilization of existing facilities through better scheduling during the academic year and considering year-round operations.

9. Encouraging off-campus extension courses and home study for credit.

10. Consolidating course offerings, especially at the freshman and sophomore levels.

Deeper examination of these various methods may prove to be valuable to Delaware in its search to finance the expansion of higher education. But even with all possible economies, public higher education in Delaware, in the opinion of the panel, will cost a great deal more in the future if the state is to meet its stated responsibilities to its citizens:

1. During 1967-68 public higher-education institutions in Delaware spent $19,200,000 for costs directly related to instruction (excluding contract research, auxiliary enterprises, and capital improvement). Of this figure, $11,300,000 (60 percent) consisted of direct state support. The per citizen cost of higher education in Delaware was, therefore, less than $22.

2. Estimating that instructional cost per student in higher-education institutions will increase at about 6 percent a year, it is reasonable to assume that by 1977 the total cost to Delaware's public institutions may be as high as $100 million. Assuming that the percentage of state support remains the same, in ten years Delaware may be paying ap-

proximately $60 million annually for the instructional costs of public higher education, or about $90 per citizen.

3. With increased efforts to make the most efficient use of facilities and to educate the largest number of students, the panel believes that over the next ten years Delaware's public higher education will need more than $200 million in state funds for capital purposes, with additional funds coming from private sources as they have in the past.

4. State support to higher education in the form of student aid was $344,500 for 1967-68. Included in this figure are $194,500 for the University, $50,000 for the State College, and $100,000 for Delaware students studying courses out of state that were unavailable in Delaware. In addition, federal efforts in the form of loans, grants, scholarships, and work-study programs provided additional students with assistance. The University also offered privately financed programs of student aid.

There are several indications that, if it undertakes the program that the panel recommends, Delaware is in an excellent position to support its higher education. The State Planning Office predicts in its Preliminary Comprehensive Development Plan that state revenues will increase to $385 million by 1980, assuming that the state's economy continues to grow at a 3 percent annual rate and that tax increases are proportionate to those of the last fifteen years. The following facts suggest that Delaware is well able to generate more state revenues for all government activities, including public higher education:

1. In 1965 the annual per capita personal income for Delaware was $3,392, the second highest in the nation, and 24 percent higher than the national average. Only seven other states have a lower percentage of households with incomes below $2,500. Almost one out of four Delaware households have incomes of above $10,000.

2. In 1965, Delaware ranked thirteenth in per capita expenditures for its public institutions of higher education.

3. In 1965, Delaware ranked thirty-second nationally in the percent of personal state income-tax revenue as a percentage of all state and local revenues.

4. The state and local property-tax revenues collected by Delaware during 1964-65 were only 19 percent of the total tax revenue of the state, or $57.36 per capita. The national average was 44 percent. Only Alabama ranked lower than Delaware.

5. Delaware's rapid industrial growth can be expected to continue in the years ahead, raising the total income of the state and its capability for the support of higher education.

6. Other states have been obliged to use several sources of tax revenue to meet the increasing costs of state government; Delaware has so far not found itself in that position.

A rather simple analysis of the public support for higher-education institutions in other states suggests that Delaware ranks below the median in annual operating appropriation per full-time undergraduate student. The following list was prepared for selected institutions for which 1968-69 state appropriations were known at the time.

TABLE 15

1968-69 State Appropriation per Full-Time Undergraduate Student for Selected Universities

University of Georgia	$3,078
University of Connecticut	2,936
University of Virginia	2,902
Purdue University	2,415
University of Arkansas	2,413
University of Kentucky	2,324
University of Maryland	2,128
University of Kansas	2,065
University of Vermont	2,056
Georgia Institute of Technology	2,044
Kansas State University	1,946
Indiana University	1,762
University of Delaware	**1,604**
University of Arizona	1,380
University of Maine	1,371
University of Alabama	1,315
Indiana State University	1,297
Delaware State College	**1,178**
Arkansas State University	943

Financial projections completed by the three private institutions in Delaware indicate an increase in expenditures over the next ten years of 122 percent. Tuition charges at all institutions will have to be raised to help meet these expenses, since enrollment will be held to a 72 percent increase over present figures. Because these institutions hope to enroll more Delaware residents in the years ahead, they are hoping that some state financial assistance — either to the institutions or the students — will be available.

Although the Academy panel's per citizen estimate of $90 for higher education ten years from now may seem high when compared to current figures, it should be noted that at the present time Delaware is spending less for its public higher education than many other states. If Delaware is to take its proper place nationally that its resources and commitments indicate, Academy projections will not be excessive.

New procedures and methods in universities throughout the country are being developed to deal with the increasing complexity and volume of higher-education finance. Some of the places where new approaches are being tried include the following:

1. The University of California is using new applications of the systems-analysis techniques which it has adapted to university problems. Among projects under consideration are program budgeting; the development of planning models to deal with academic, fiscal, and physical factors in a rapidly expanding university system; cost-effectiveness studies of alternative ways to utilize resources.

2. A Ford Foundation grant to Stanford University will enable it to complete in three years — instead of nine — an integrated computerized system for all of its administrative activities. It will report on how the ability to order and call up data affects the decision-making process. Stanford now has seven different systems of information and records to integrate and program for computers. For example, files on the same student are kept by various school offices, alphabetized and cross-referenced in a variety of ways. The proposed integration would substitute teletype or television for all but one of these sets of files.

3. Princeton is applying new analytical techniques and computer technology to academic issues, and will attempt to integrate financial and academic data. Plans include an extensive survey of the Princeton budget to determine present and future consequences of alternative decisions, the scheduling of time and space in the academic program, and a systematic evaluation of teaching and teaching methods.

4. Also other, smaller institutions are moving in this direction. For example, at Wesleyan University educational planning and cost analysis are being correlated. The result may be a program-budgeting format suitable for other small universities.

Such approaches underline the important fact that finances cannot be divorced from the other aspects of the educational enterprise. For a good part of the economic squeeze that afflicts colleges and universities comes not just from limited funds, but from the way those funds are used. Proliferating courses and specialties, sacrosanct departmental fiefs, the penchant for small classes, the aversion to technology, the reluctance to cooperate on an interinstitutional or an intrainstitutional basis, underutilization of the physical plant — all these contribute highly to the cost-price squeeze (more important, they thereby hold down the quality of learning).

If the panel's recommendation for the state-wide University system is accepted, the state could establish a formula basis for its annual appropriation to the University, based upon the number of faculty and full-time student equivalents (undergraduate, graduate, summer session, and extension) for all publicly supported higher education in Delaware. If extension and summer-session students were recognized (they are not at the present time) and a higher per-student appropriation were authorized for graduate students in recognition of the higher cost for their instruction, the University would have a more rational basis for its budgetary requests to the state. The state would then be able to project more efficiently and realistically its financial requirements for higher education. In addition, the University would be able to utilize its private resources for the enrichment of its programs (consistent with the intentions of its benefactors) and rely on the basic support from the state, rather than tailoring its request for state funds to the differential between its private support and its estimated expenditures for the next budget year. The state, of course, would have to make a supplementary provision in its appropriations to the University for special, basically non-instructional, projects — in agriculture, water resources, and urban affairs, for example.

Financial aid to students is another reason for the increasing costs of higher education. Delaware's several programs of assistance for college students are based on a clearly stated philosophy of financial aid in the legal codes of the state. The Delaware Right to Education Act of 1957 predates both the Educational Opportunity Grants program authorized by the federal Higher Education Act of 1965, and the National Defense Student Loan Program. Delaware is to be commended for this forthright acceptance of its public responsibility to guarantee that no citizen of the state shall be denied higher education because of financial need.

When measured against this ideal, however, state programs of assistance to college students in many cases fall short of the mark. The programs resemble a patchwork quilt, consisting of a series of separate decisions made over the years in response to problems as they arose. As a result, the panel feels, there are many students today — either in new public institutions or from emerging economic groups — for whom insufficient provision for state financial aid has been made. Under the proposed expanded University, new and imaginative approaches will be possible to identify areas of need more accurately and to provide funds for them.

The panel believes that state support to students enrolled outside of Delaware in programs currently unavailable at public institutions in the state will need to be continued for a number of years to come.

The greatest inadequacy in Delaware's state programs for student assistance is their level of funding. The panel believes that under the expanded University a state-wide evaluation of all programs will pinpoint the limitations of uneven distribution of funds and the need for increasing assistance to keep up with the increases in tuition and enrollment.

Recommendations

Although the panel was unable to obtain, in some significant instances, the information from Delaware's higher-education institutions in sufficient detail for the extensive financial analysis it had hoped to conduct, it offers the following recommendations:

1. All budgets for higher education should be coordinated, reviewed, and submitted to the state through the state-wide University of Delaware. This should apply to both operating and capital funds and also to auxiliary enterprises and contract research.

2. With the responsibility for all of public higher-education financing resting in the expanded University treasurer's office, a new financing policy should be prepared to provide:

   Equity in faculty salaries and fringe benefits at all institutions of higher education, which should be competitive nationally.

   Adjustments of tuition charges to reflect both increased expenses and the savings brought about because of increased coordination.

   Close coordination between academic and financial departments, and between them and the University planning office.

3. The panel makes the following recommendations for state programs of student assistance:

   a. All state scholarship programs should be organized under the Right to Education Act. State funds available under this act should be substantially increased to ensure that no prospective student of higher education is denied access to public Delaware institutions because of financial need. As costs of education continue to rise, the adequacy of these funds should be continually reassessed.

b. An expanded University would be able to facilitate the Right to Education Act's dictum to include all students in public higher education in Delaware. The panel recommends that guarantees be written into the act to ensure that no discrimination is made on the basis of race or religion.

c. State funds for assistance to the University's students should be appropriated annually in a lump sum. The distribution should be administered by the expanded University of Delaware, operating in accordance with the Right to Education Act.

d. Under the state-wide University system there should be only one tuition schedule for all segments (with a continuing higher rate for out-of-state students). As this single tuition schedule may impose hardships on those students who previously paid at a lower rate, the panel recommends that the University be prepared to meet the proportionately greater financial needs of these students.

e. Because Delaware's private institutions now educate a percentage of Delaware residents who might otherwise be in public institutions, the panel recommends that state assistance be extended to private institutions for needy Delaware residents who study there. As an incentive to these institutions to enroll more Delaware residents, an annual lump sum appropriation could be arrived at by means of a formula. One such formula may be to provide the equivalent of the full cost of tuition to each private institution at the rate of 5 percent of the number of Delaware residents enrolled in the previous year. It is assumed that financial aid to students would be administered by the institution to Delaware residents on the basis of need.

f. To increase the opportunities for full-time graduate study at the expanded University there should be established greater financial assistance for full-time graduate students. As the University recognized in its *Fifteen-Year Forecast of Students, Staff, and Facilities Ending in 1982*, "The number of full-time graduate enrollments will depend directly on the extent to which the University will compete successfully for federal, industrial and foundation grants in support of research and graduate education."

Conclusion

Planning for tomorrow is a momentous undertaking. Many of those who work in higher education have longed for a respite, a moratorium in which they could sit back, take stock of their resources, re-examine their goals, and look to the future. But the day-to-day calls upon higher education that demand immediate attention are staggering. Costs are rising, enrollment is expanding, knowledge is exploding, and students are clamoring. It is no wonder that in meeting today's crises, there is often little time to reach for tomorrow's greatness.

The pressures of today's world are forcing higher education to examine and improve on past performance, assume new responsibilities, solve new problems—and on a larger scale than ever before. To meet the challenge of tomorrow will demand in many cases a re-organization of structures that are no longer serving the purposes for which they were intended. Delaware can be proud of the past accomplishments of its higher-education system as it adapts this system to the demands of tomorrow. The panel applauds Delaware's commitment to extending higher-education opportunities to all its citizens, and is fully aware of the radical changes that may result in carrying out this responsibility. As John Gardner wrote in *No Easy Victories:*

> *The effort to educate all our citizens entails certain consequences. It means mass education. It means crowded schools and huge universities. It means devising educational programs for youngsters who will grow up to be plumbers and farmers as well as for those who will grow up to be philosophers and art critics. In short, it is a very different system from one designed to educate young aristocrats for the role of cultivated gentlemen. We have set ourselves a task of astonishing dimensions. And having set ourselves these objectives, we cannot weep because our educational system no longer resembles the cozy, tidy world we deliberately put behind us.*

We have attempted in this report to establish the dimensions of higher education for Delaware in the years ahead, to review existing and potential resources available, and to suggest the ways in which these resources can be best used. The recommendations in this report are the result of the best thinking by a group of experienced educators on what the problems will be and how they can best be approached. If those responsible for higher education in Delaware understand and accept the spirit of this report, they will work for the establishment of an ever renewing system of higher education. They will realize that the best institutions profit by continual re-examination, and they will appreciate the value of dissent and will welcome vigorous criticism. As these men and women prepare for the future, as they come face to face with the consequences of their commitment, they will understand that higher education is a responsibility as well a right of all the citizens of Delaware, and that to meet this challenge they must work together.